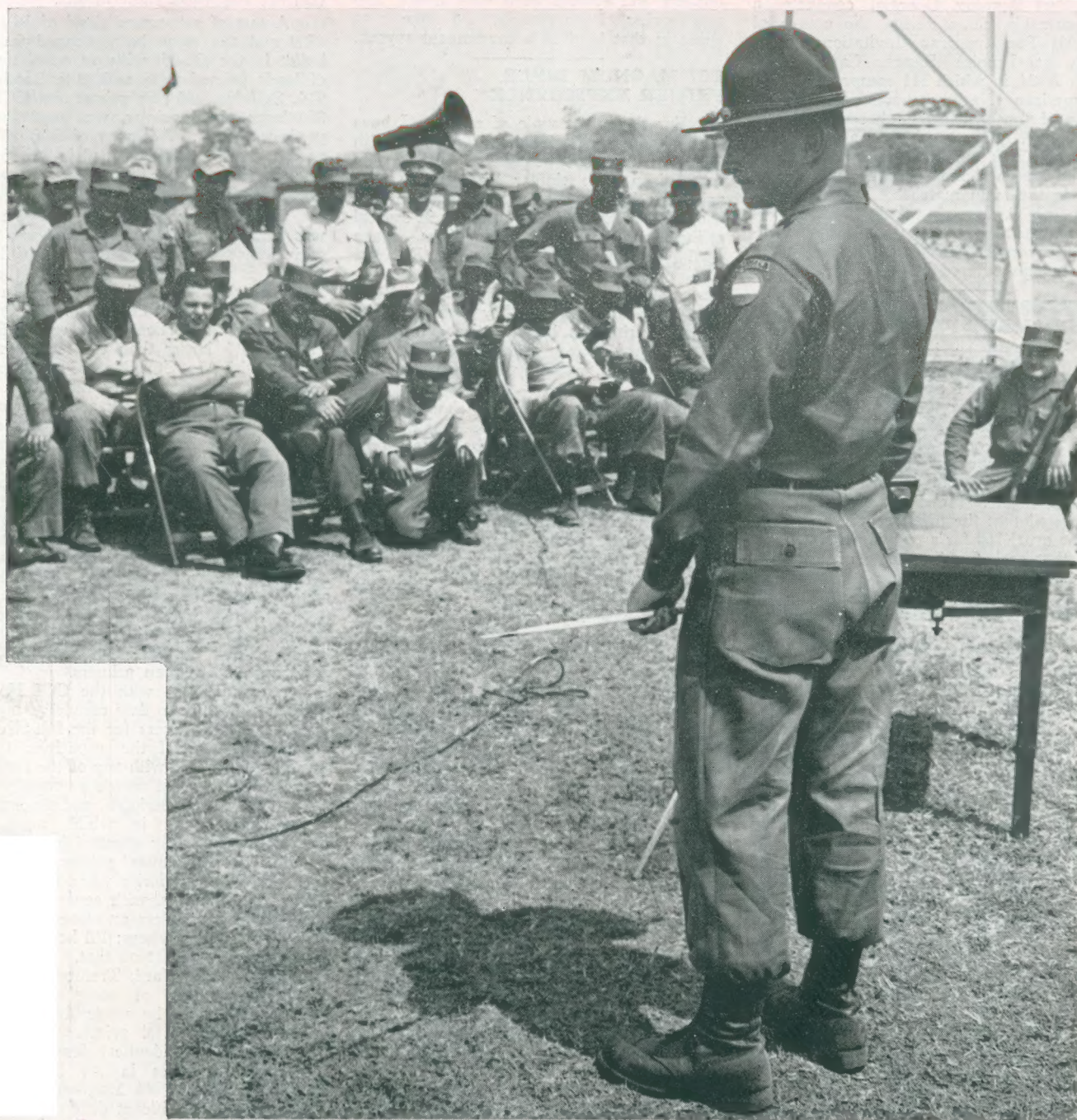


June 1961

Vol. 6, No. 2

35 cents

Precision SHOOTING



a magazine for Shooters by Shooters

Precision Shooting is published monthly by Precision Shooting, Inc.

Editorial and business office at 64 Depot Street, Lyndonville, Vt.

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Subscription rates:—To the U. S., Canada and Mexico, 1 year \$4.00, 2 years \$7.00, 3 years \$9.00. All other countries \$1.00 per year additional.

Change of address requires 30 days' notice.

Place of Publication—Cowles Press, Inc., 83 Eastern Ave., St. Johnsbury, Vermont. Second-class postage paid at St. Johnsbury, Vt.

THE COVER PHOTO

The U. S. Army Marksmanship Unit from Fort Benning, Georgia, conducted a marksmanship clinic during the course of the 1961 Pan-American Invitational Rifle Match at Empire Range, Canal Zone, March 20-24, in which 111 competitors from 14 American Nations participated. Consisting of top marksmen chosen from all major U. S. Army continental and overseas commands, this unit also gave an Infantry Trophy Match demonstration and participated in the team matches. First Lieutenant Joseph C. Gmelch of the AAMU is shown presenting a class on firing techniques to competitors of the 14 nations of the Americas entered in the match.

A DIFFERENT SMALLBORE TOURNAMENT PROGRAM

We recently received a copy of the official score bulletin from the Rochester Rifle Club's annual Spring smallbore rifle tournament, fired on their Canandaigua, New York range on May 21st.

In our first quick glance over the bulletin we were impressed by the number of matches listed; a total of 12 besides the grand aggregate. However, a closer scrutiny showed that the total record shots fired was the usual 160 for a one-day tournament, **BUT** that each 20 shot stage of the conventional 40 shot match was considered as a separate match with awards. The 40 shot matches were the aggregate of the two 20 shot matches for the course. The tournament was not classified by the NRA system but the added number of matches tripled the possibility of **WINNING** a match.

For each match, including the grand aggregate, there were three cash prizes; one to the match winner (approximately 45% of the cash pool) and two "consolation" prizes, one of approximately 35% and the other 20%. We do not have a program for the tournament and do not know the system for awarding the consolation prizes but it would appear that it were some adaptation of the LEWIS system. Competitors who fired the **best score** in each 20 shot match (20 shot stage of the conventional 40 shot match) received credit and reward for their good shooting.

As it worked out with this program, at least two shooters **WON** a 20 shot match, and got credit for that good shooting, even though they didn't come close in any of the other matches. The winners of two of the aggregate 40 shot matches did not win either 20 shot match making up the aggregate, but winners of the other two 40 shot aggregates did win one of the 20 shot stages of the match.

To illustrate how this program and prize awarding worked out: The Roches-

ter Rifle Club's long time top shooter Art Blensinger won more than half as much prize money in "consolation awards" than did the grand aggregate winner Collins Kellogg of Lowville, New York, with his 1599-115x score. Oran Weaver from Brookville, Pa. won half again as much money than did his shooting mate LaRue Pollum, though Weaver's grand aggregate tally was 13 points lower than runner-up Pollum's 1597-119x tally. Aggregate 4th ranking Olin Le Roy of Rochester won one of the 40 shot aggregates but 3rd place William Karl of Buffalo, and the rest of the top-ten in the grand aggregate, had to be content with a single consolation prize for the day.

While the total tournament entry was no record breaker, some 50 odd, the program must have looked attractive to long experienced tournament shooters, since they came from Albany, N. Y., to North East, Pa. (just over New York's western border) and several from well down into neighboring Pennsylvania. I'd like to shoot in that kind of a tournament myself.

CCI MAGNUM RIFLE PRIMER EXPERIENCE

For the past couple of months I have been shooting rifle handloads primed with the CCI No. 250 "Magnum" primers in comparison with similar loads with other primers I had on hand. Have shot to date some 700 of the No. 250 primers in several calibers and a variety of loadings. Have used the primers in .219 Don, .257 Roberts, .308 Win. and .30-06 calibers and with loads ranging from very light reduced loads to normal max. loads. My evaluation of the new primer is based entirely on comparative performance results on the targets, from my rifles, with my loadings, and my shooting.

All the comparative test shooting was from bench rest at 100 yards. Each of the various tests were made in the same shooting session with identical loads, usually in the same make and lot of case, half (usually 20 loads each) primed with the CCI No. 250 primer and half with a competing primer. Five shot groups, usually four with each primer, were fired in the tests, alternating the loads with the different primers.

I purchase my primers locally and usually take what is available when I need to buy. For my own shooting I have never been able to detect any outstanding difference in the performance from primers of makes commonly available. The primers I had on hand and used in comparison with the CCI No. 250 Magnum primer were Remington 9½. With **one** exception, I have not been able to detect any significant difference in accuracy results from the primers used in these tests.

I received without warning the sample lot of CCI Magnum primers a week or more before I received any information about them. Naturally, I hastened to try the new primers right away. The "Magnum" designation made me cautious and my first loading was in the low range for the cartridge first tried. From the results of that first loading, I went to my normal loadings for the various cartridges. When I did receive the manufacturer's information I found my experience was what could normally be expected.

The CCI ballisticians' information indicated that their tests had shown very uniform velocities with powder charges that only partially filled cases. I figured that real "peewee" reduced loads in sizable cases should show up any superiority of the No. 250 primers in this respect. A load of 14

grains of 4759 powder with my home-swaged 144 grain jacketed bullets had given excellent short range accuracy in my .308 Savage 110 featherweight rifle. I had some of those loads on hand, primed with the older No. 200 CCI primers. I loaded an equal number with the same load, with each the No. 250 CCI and Remington 9½, and test fired them at 100 yards. In this test firing, to make conditions as nearly comparative with field shooting as possible, I loaded the cartridges singly and by magazine full into the magazine and fed from magazine into chamber with no special care in uniformity of loading. The accuracy was good with all the primers for such a light load fired in this manner, scoring from a low of 45 to several 50 possibles on the NRA 100 yard smallbore target. There was no outstanding difference in the accuracy or uniformity between the loads with these three primers. Subsequent shooting from both rest and prone-with-sling position has confirmed these results.

A test of a "peewee" load of 16 grains 4759 and the same home-swaged jacketed bullet in the .30-06, with an equal number of loads primed with each the Remington 9½, CCI No. 250 rifle primer and CCI No. 350 large pistol primer, was made at 100 yards from rest. Accuracy of this load was not as good as the .308 load but there was not any significant difference in accuracy or uniformity between the different primers.

The "one exception" mentioned earlier was with a load of 40 grains 3031 and a 169 grain bullet, home-swaged in RCBC 1.200" jackets, in R. A. 57 cases, 20 with the No. 250 primer and 20 with the 9½. In this test the loads with the Rem. 9½ primer gave consistent vertical stringing and 5-shot groups 80% larger than the normal round groups with the CCI No. 250 primers. I rechecked this test, using the same cases and same lots of powder and bullets, but priming the 20 cases primed with the 9½ primer in the first test with the No. 250 primer, and vice versa. The results were repeated, the 9½ primer loads giving the same vertical stringing and the same 80% larger groups than the No. 250 primer loads. The bullet used gives normal accuracy in the same rifle with other loads, and no significant difference as between the with a load of 40 grains of 3031 and the 144 two primers. A following comparative test grain home-swaged bullets gave normal good accuracy for this rifle and no noticeable difference as between primers.

My experience with the CCI No. 250 Magnum primers to date convinces me that they are good primers for the full range of loading in cases of the capacities that I have used them in, with any of the currently available canister lot powders normally used in that range of cartridges, and through the temperature range in which most rifle shooting is generally engaged in. Whether or not these "Magnum" primers may show some marked superiority when used in very large capacity cases, with some of the very slow burning powders or some of the Ball powders, I do not know; I'll have to accept someone else's report on that.

Mr. Edward Yard, Trenton, N. J., has sent me reports of some comparative chronograph tests he made between CCI Magnum large pistol primers and WRA 111 primers, with identical loads of H240 and Herco powders in .44 Special, and 295HP powder in .44 Magnum cartridges. There was no significant difference in velocities as between the two makes of primers. In the .44 Special H240 loads, Rem. 2½, RWS and the older CCI primers gave slightly lower velocities than either the CCI Mag. or WRA 111 primers. Again,

it would appear, from this one test report, that the CCI Magnum are good primers but perhaps not outstandingly superior to some other available pistol primers.

In both rifle and handgun cartridges there will be without doubt some cases and some circumstances in which the CCI Magnum primers will excel some other makes of primer, and there will just as surely be other cases and circumstances in which the CCI Magnums will be excelled by some other make or lot of primer. As usual, it will be up to the individual to tailor his loads with the components that work best for him, in his guns.

P. H. T.

BRUSH BUSTING BULLETS

By Paul Wright

Practically every magazine with a shooting department has of late been guilty of advocating guns and bullets capable of shooting through a lot of brush to bring down that ten-pointer (or farmer Jones' old gray mare). There seems to be a craze along this line of shooting into brush. Some of the headlines read something like this: "Big Brush Busting Bullets," or the writer will vouch for the need of a shoulder weapon to handle the great new 44 S&W magnum, a super brush cutter (something little better than the old 44-40 which was made obsolete by the 30-30 sixty-seven years ago). Other writers will explain how a twig deflected the .243 bullet, but how Grandpappy's good old 45-90 would plow through 12 feet of stacked green brush and hold true course (and probably on through Uncle Abner's barn and old Bobbin before lodging in Elsie's stern).

This subject serves two purposes: First, it makes the best alibi for missing a deer or other game that I know. Right here, on this subject, a book could be written on the experiences of hunters who, "missed that big buck because their lightweight, high velocity bullet hit a twig and exploded." Last fall I hunted with a friend I will call Honest John, who shot at the grandpappy of all bucks broadside, and not over 60 yards (all according to him), but the buck just switched his tail and decided to move on over the hill. John came up with the good old-time proven alibi: "When I fired, half a green oak tree fell down between us; I had cut a limb off as big as your arm." I asked him why in heck he shot the limb instead of the buck, to which he had little answer except that next year he might borrow his uncle's 45-70 or some other brush cutter. Again, it makes a wonderful alibi for a case of the "Buck" or just poor marksmanship. I know because I have used it on one or two occasions in the past.

The other purpose this Brush Busting business serves is merely for the writers. They have to write about something. I recently read in one of our sporting magazines, dealing mostly with rifles and bullets, another slant on the brush gun. This writer advocated the varmint type rifle and pinpoint accuracy; he went on to seriously tell of a friend who could only see a patch of deer hide through a 2-inch hole in the brush at 175 yards. Needless to say, the varmint shooter brought down a fine buck. I would hate to be caught prowling those woods with a gray flannel patch on my seat during hunting season.

These articles may be good reading but they don't help our accident rate which runs into many figures annually. In all seriousness, each year we hear the alibi: "It looked like a likely place for a buck and when I heard him (the victim) move, I

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took a sound shot." A few years ago in our sister state of Arizona, a tragedy took place. A young man saw some brush move and fired into it. He hit one of his party right between the eyes. He kept it quiet and even worked in search parties, but after several days he led his party to the victim's corpse. He broke down and told the true story. Years ago I "jumped" a nice whitetail buck, but I was caught napping and he was over the ridge before I could fire. By the time I could get over the ridge and to a point where I could see, I spotted what appeared to be my buck or at least his "flag" moving down in the shadows. I didn't have a scope or even a field glass, but I knew it had to be my buck. I held my fire as I wanted to fully identify my target. He was headed for sunlight and an open spot. When he stepped into plain view, it was a man, and of all things, a white handkerchief around his neck. Anyone that will wear a patch of white during deer season, especially where whitetail are found, probably should be shot, but I don't want to pull the trigger.

The moral is: "Be sure it's legal game before you shoot." You can't do this looking through a 2-inch hole in brush at 175 yards or using that heavy bullet trying to reach a "sound" in heavy brush.

CLASSIFICATION:—A HELP OR A HINDRANCE?

By Dermot C. Reilly

No sensible person would deny that the basic theory behind the NRA's classification system is sound. It is submitted that the major premise on which its application is predicated, i. e., that competitors classified lower than Master want to shoot against other competitors of similar classification and **NOT** against the entire field, is more often fallacious than true.

A lot of non-Masters get small satisfaction out of winning prizes in the form of class awards when higher scores fired in the same match have won nothing, but get a tremendous kick out of "shooting over their heads" now and then and getting a place award in a field of top notch shooters.

A more logical method of utilizing classifications would be to graduate entry fees in proportion to a competitor's chances of winning a place prize. Such a schedule of entry fees could be:

Marksmen:	X plus \$0.25
Sharpshooters:	X plus \$0.50
Experts:	X plus \$2.00
Masters:	X plus \$3.50

where X is the amount retained by the tournament sponsor, the rest going into place prizes for which all competitors fire.

The foregoing comments and schedule are not based on statistical sampling or anything more scientific than a "guesstimate" based on who won what in dozens of tournaments. However, the class award system is about as logical as giving a prize for scholastic excellence to the highest ranking students who flunk, and, judging from the numbers of competitors in small-bore tournaments not having State or Regional status as compared with the fields in such

COMING MATCHES

(We will list place, date, type and title of match, name of sponsoring organization, name and address of contact person, at a nominal flat rate of \$2.00 per insertion, pre-paid with insertion order. Insertion orders must reach the Precision SHOOTING office, 64 Depot Street, Lyndonville, Vt., at least 45 days before date of match for single insertion orders. For multiple insertions, 30 days additional must be allowed for each additional insertion desired.)

Murrysville, Pa.: July 22 and 23; Franklin Township Free Rifle Championship, 50 and 300 meter three-position. Murrysville Rifle Club, Wm. R. Funk, R. D. 1, Box 2, Murrysville, Pa.

Murrysville, Pa.: September 23 and 24; Pennsylvania Free Rifle Championship; 50 and 300 meter three-position. Murrysville Rifle Club, Wm. R. Funk, R. D. 1, Box 2, Murrysville, Pa.

tournaments twenty-five years ago, before the NRA got "classification happy," any change would seem justified in the hope of effecting improvement.

Another item frequently present in small-bore tournament programs deserves unfavorable comment. A dollar a 40-shot match entry fee in a four fired match tournament with 60% pay-off is getting to be so prevalent as to be nearly standard. By second grade arithmetic, the sponsor gets \$1.60 per competitor, out of which it pays \$0.74 for targets and backers (assuming the freight on them balances the club discount). By first grade arithmetic, this nets the sponsor \$0.86 out of which it must reimburse itself for about a nickel's worth of NRA forms, the cost of the program and mailing it out (say a dime minimum) and the cost of the results bulletin mailed out; about another dime. Final net net profit for the sponsor (by kindergarten arithmetic):—sixty-one (61) cents for the fired matches of the tournament per money shooting competitor. But the sponsor isn't through yet. With multiple class awards and the frequently inserted proviso that no competitor may win more than one award in one match there are a lot of checks to send out. With the high cost per check in the typical sponsor's lean account this will cut another 4¢ per average money shooting competitor off the sponsor's little residue. Final final net net:—\$0.57 for the sponsor for all fired matches of the tournament per money shooting competitor. Lest some sensitive money shooting competitor think the sponsor grabby or capricious and be offended by the thought that he is being exploited, aggregates and concurrent matches are pared to the minimum or set to pay off 100%.

Finally to compound error and illogic, the Simon-pure amateur or the starter-inner who doesn't care much about pushing over other push-overs is "encouraged"! He is permitted to fire in all fired matches for \$3.00. A little more elementary arithmetic demonstrates that he pays into the sponsor \$1.40 more, and that 4¢ less (besides a lot of statistical work, which is free, of course) is paid out on him than on a money shooter. Sponsor's final final net net take on him—\$2.01. In round figures, he gets

(Continued on Page Eighteen)

EROSION IN GUN BARRELS

By Creighton Audette

I have read with interest Mr. Grigg's article "Cavitation in Rifle Bores" in the March 1961 issue of "Precision Shooting." The subject of bore erosion is one which has been given a great deal of study by ordnance experts in this country and in other countries, and available literature clearly outlines the causes and effects of erosion. The information below is taken from the following three papers. It is suggested that anyone deeply interested in this subject refer to these three papers which contain much information and many photographs which I have not attempted to include in this article. The articles are: "The White Layer in Gun Tubes and its Relation to the Case of Nitrided Chromium Aluminum Steel" by H. H. Lester. Mr. Lester was Research Physicist, Watertown Arsenal, Watertown, Massachusetts, and his manuscript was prepared for the Nitriding Symposium of the American Society for Steel Treating in October of 1929. The second paper is "The White Layer Structure for Machine Gun Barrels" by W. H. Snair and W. P. Wood from the transactions of the American Society for Metals, 1939. The third paper is "Progressive Stress Damage" by Peter B. Costing. Mr. Costing was associated with the War Department, Watertown Arsenal Laboratory, Watertown, Massachusetts, and his paper was one of a series of lectures given on the surface stressing of metals at the 27th Metal Congress Exposition sponsored by the American Society of Metals in February of 1946.

These three articles cover tests and research work done on .30 caliber and .50 caliber machine guns, 155 millimeter gun tubes, and cannon up to 12" guns. The causes, effects and patterns of erosion are common to all of them, but, of course, the rate of erosion and the amount of damage done varies depending upon a great many factors including the material and metallurgical condition of the gun barrel, the rate of fire, pressures developed, etc. The following is concerned principally with the .30 caliber machine gun.

In the .30 caliber machine gun, using nitro-cellulose powder, the pressure of the loads used in the test was approximately 51,000 pounds per square inch. The theoretical flame temperature of the powder gases was approximately 2,800 degrees centigrade (5070 Fahrenheit) and the products of powder combustion are

CO , CO_2 , CH_4 , N_2 , H_2 , and H_2O .

It has been chemically and metallurgically proven that the nitrogen under the heat and pressure developed by the burning powder gases actually nitrides the interior surface of the bore. This is the "white layer" referred to in the titles above. This nitrided layer is glass hard and is very brittle. It extends along the bore about $2\frac{1}{2}$ " from the origin of the rifling. It varies in depth along this distance and if the depth were plotted versus the distance along the bore, the resulting curve would closely resemble a powder pressure-distance curve. This fact indicates a definite relationship between the powder pressures developed and the white layer or nitrided layer formation.

Nitriding, whether in gun barrels or in commercial nitriding furnaces, enters into steel more readily along the grain boundaries. It also follows into, penetrates and enlarges cracks. This is significant as we shall soon see.

The surface fibers at the bore interface of guns are customarily stressed beyond the endurance limit of the metal. The reasons

for this are both thermal and mechanical. The intense heat of the powder gases expands the surface layer of the gun bore compressing this layer. After each shot, or series of shots, the colder areas of the barrel have a quenching effect on this surface layer, causing it to contract. The bore interface is subjected to repeated thermal shocks. There is also a normal mechanical stress system arising from the gas pressure, from the interference between the bullet or projectile and the rifling and from the rotation imparted to the projectile by the rifling. All of these factors result in cracking of the bore interface and enlarged views of these cracks show a structure resembling charred wood in appearance. It is interesting that these stress cracks can be found in the forcing cone area of some cannon barrels after proof firing and before the gun has been put in service. It seems reasonable that such cracks may also occur on a smaller scale in rifle barrels from proof firing.

The nitriding, which is glass hard and very brittle, proceeds along the cracks and grain boundaries. This results in a weakening of the structure of the metal particularly where there are sharp corners or exposed edges such as the edges of the rifling. As this proceeds, small sections of metal are broken out and photomicrographs will show that the nitriding process has proceeded completely around small sections of the barrel at which time the mechanical stresses of bullet engraving and the other thermal and mechanical stresses to which the barrel is subjected break these particles loose. Nitriding then proceeds again upon the edges of this crater and upon the edges of the grain boundaries and cracks revealed by the crater. A chart of the rate of wear versus rounds fired is parabolic, not linear. The rate of erosion increases with the number of rounds fired.

Since erosion is primarily stress damage, anything tending to increase the stress inside a gun barrel tends also to increase the rate of erosion. Any machine marks,

or surface imperfections left by machining or stresses left by machining will act as "stress-raisers" and cracks will start at these points. If machining or manufacturing processes leave the interior of the gun barrel under tensile stress, barrel life will be shorter than if the interior of the gun barrel is under compressive stress. It is probable that all present methods of rifling leave the bore surface under tensile stress. Those barrel makers who do a final stress relieving operation after finishing the rifling in the bores of their gun barrels, whether the rifling be machined, buttoned or swaged are lessening the effects of erosion as well as stabilizing the barrel. (I have discussed with several metallurgists the probable effects of buttoning and cold forming gun bores and I find that there is considerable controversy over this point. A research man at Springfield Arsenal, who is concerned over this specific problem, told me emphatically a year or so ago that they had found no advantage to cold forging over other processes so far as the metallurgy or life of the barrel was concerned.)

There are, of course, other factors involved in the erosion process besides those discussed in the preceding paragraphs. There are some chemical effects from the gases other than the nitrogen produced upon the burning of the powder and there is the effect of the "washing away" of the bore surface by the hot powder gases. Probably this proceeds much as Mr. Griggs has described it. Since the bore is not really smooth, any small projections will be heated to a much higher temperature than the bore surface, resulting in literally a melting and blasting away of microscopic particles. This effect would undoubtedly be more pronounced at points of gas leakage around the bullet such as those areas immediately adjacent to the lands. At the same time there are other factors which tend to increase the damage at these same points. The gas escape at these points causes greater thermal reaction, greater stress, and a more rapid rate of nitriding.

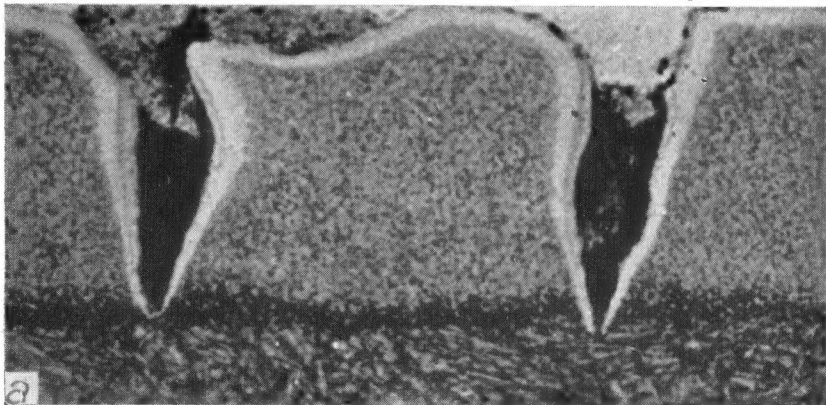


Photo No. 1

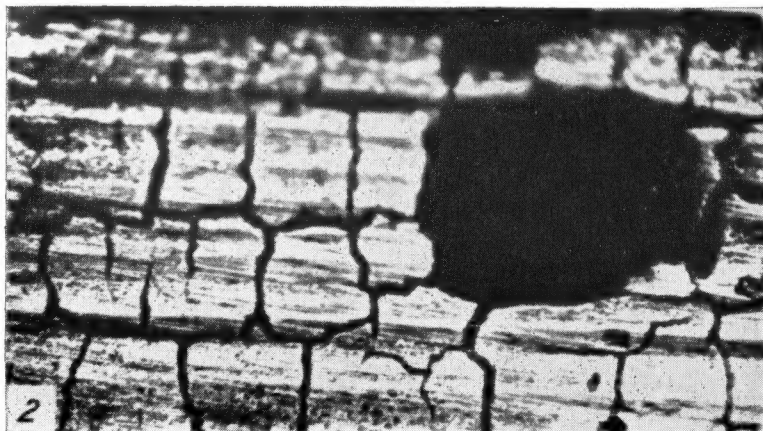


Photo No. 3



Photo No. 2

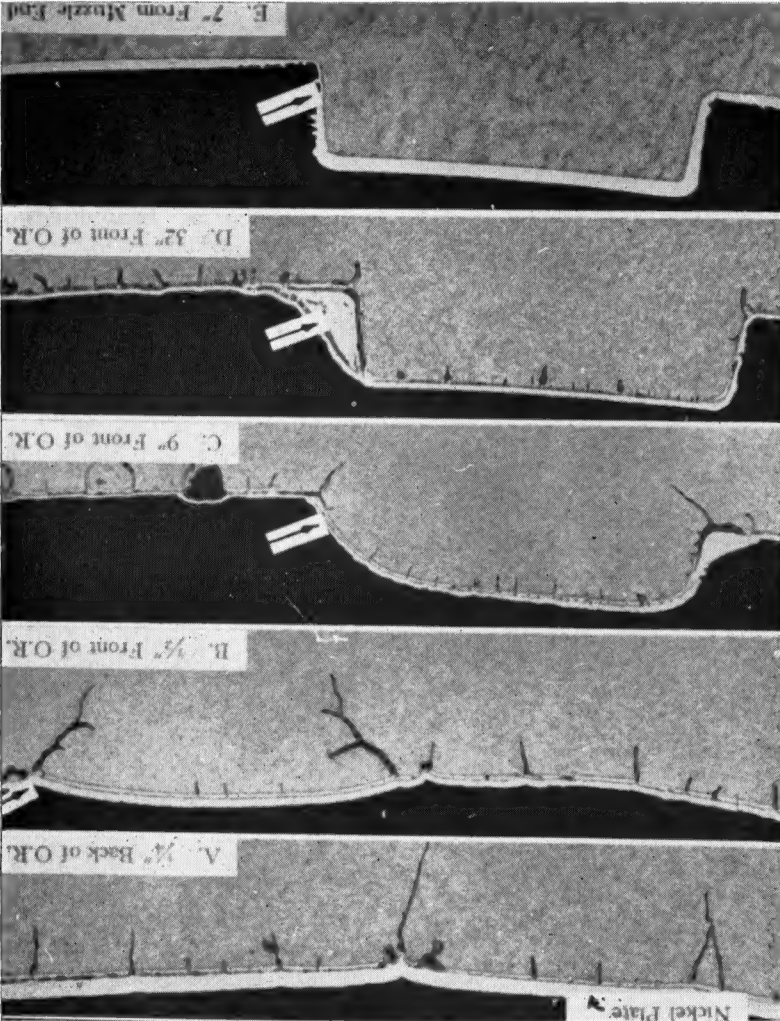


Photo No. 4

tained from barrels of stainless steel or the Timken steel (actually these should not be referred to by a trade name but should be referred to by the specification number. Timken, of course, makes a great many steels but since the word Timken barrel has come to mean a certain thing in the firearms trade, I am using the same word here.) is because the chemistry of these steels resists the effects of nitriding and the other chemical effects. In some cases these barrels are also harder and have greater tensile strength than standard chrome-molybdenum barrels. These, of course, are also plus factors tending to increase barrel life. Machine gun barrels have been made

(Continued on Page Six)

At the same time, these areas are more likely to be "stress-raisers."

The photos accompanying this article are taken from the papers referred to in paragraph one. Photo number one shows cracks in a gun barrel at 500 magnifications. The lighter colored areas immediately adjacent to the cracks and the bore surface are parts of the white nitrided layer. Photo number two shows the bore surface near the origin of the rifling of a 155 millimeter gun which has been fired about 1500 rounds. This is typical of the stress damage pattern shown in all types of gun barrels. Photo number three is a section of the bore of a fifty caliber machine gun barrel shown at 100 magnifications. Note the cracks and the section of metal which has been cracked away and broken loose. Photo number four shows views at various points along a large cannon barrel which had been fired about 2000 rounds. These views are taken at points along the barrel starting $\frac{1}{4}$ " back of the origin of the rifling and extending forward to 7" from the muzzle. The pattern of the stress damage is clearly evident and it can be seen how the stress cracks proceed from the corners of the rifling and will eventually allow complete sections of the rifling to break away. The view C, which is nine inches in front of the origin of the rifling, also shows loose particles which are near the point of breaking loose and a cavity left by a particle which broke loose during the polishing process. Please note that the light colored section covering the bore, land and groove surface is **not** the white layer referred to in other parts of this article. This is nickel plating which was done in order to allow the polishing of the specimens completely to the edge without rounding the edge over and is common practice in metallurgical laboratories when preparing specimens for photomicrographs. The fact that this plating extends over the pocket in "C" is evidence that the particle was in place at the time of plating but that the metal removed in polishing plus the forces of polishing was sufficient to allow this particle to break loose. The arrows in these views indicate the driving side of the land.

The reason that longer barrel life is ob-

Erosion in Gun Barrels

(Continued from Page Five)

of hardened and tempered tool steel, hardened, I believe, to 45-50 Rockwell C. This compares with a usual range of C 23 for many of our custom gun barrels today, to the hardness of C 32 - C 34 required by Springfield Armory on the barrels of the M14 rifles. Hardness alone did not prove to be a very large factor in barrel life and the hardened tool steel barrel showed no significant barrel life improvement.

In discussing gun barrel erosion with several metallurgists, I have found that it is a subject which is well known and well understood in metallurgical circles and it is, of course, well known in ordnance circles. It seems to be little known and little understood among riflemen, shooters and gunsmiths and I hope that this article, which must be viewed as the attempt of a layman to interpret and express a subject requiring a considerable knowledge of metallurgy, will help to explain barrel erosion to this group.

BALLISTICS EXPERIMENTERS DISCUSS PLANS

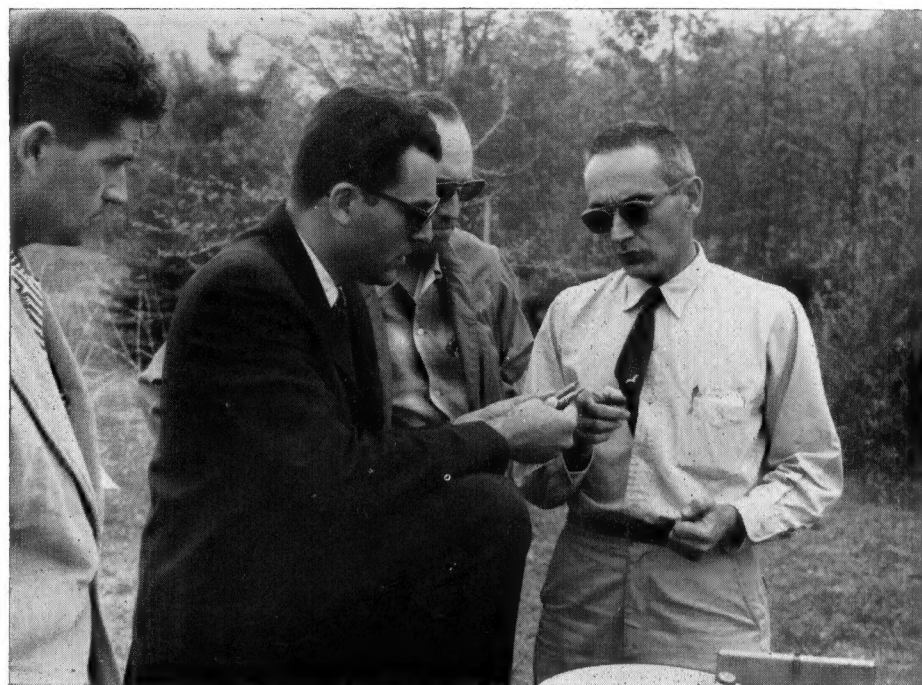
On Saturday, May 13th, eight ballistics experimenters converged on the Yard Test Range near Lambertville, N. J. for a first annual meeting and some face to face talk about working in unison to promote better amateur testing and more of it. They agreed to exchange their data freely for the benefit of all. Those seven men from the New Jersey-Pennsylvania area who up to now have pioneered this cooperation in ballistic testing were joined by James Rudolph of Springfield, Va. (formerly of Calif.)

The purpose of this meeting was to bring together as many active experimenters as possible to discuss their common interests, and to demonstrate to them some of the latest techniques in multiple velocity measurement. Precautions needed for successful testing of sub-caliber rifles (.17 and .20) were shown. A method of firing to assure 120 chronographed shots per hour was shown, using a breakable screen system, as well as other technical matters.

Gathering this overcast spring day to compare notes, travelling from 50 to 175 miles, these serious workers proved again that where there is an idea, they will go. The talk was guns and shooting, but with a slant: to improving them, to testing and evaluating them. Unanimous was the opinion that in the past information has been lacking, and that in the future the amateur must be prepared to work with his fellow shooters for their joint good. These men are seeking the true facts and they are willing to work to get them, and are presently doing so.

A key to success in exchanging ideas is an efficient means of communication. This has been a stumbling block in the spread of data for some time. A letter and a few carbons reaches less than a handful of men, while word of mouth is soon forgotten. All present agreed that information should be typed on some form suitable for available means of duplication, and that those who have no access to these means send their typed work to someone nearby who does. This will mean using translucent paper or some systems paper. As the volume of data grows, a more uniform and versatile method will be required, and then worked out.

It is essential that, as data is developed, a report be written and distributed, both to keep information flowing and to avoid unnecessary duplication of effort (this, of course, does not mean retesting and independent checking are discouraged). The scope of such reports may be minor indeed,



Helbig and Roma discuss .20 cal and 17 cal. wildcat cartridges while Bill DeMott and Jim Rudolph listen in. These men do a lot of wildcatting and cartridge development work.

and yet represent a valuable contribution. A sample of such a routine report of limited testing is appended to illustrate both form and scope. Often elaborate or extensive experiments will require an article to cover adequately the work, and where these seem to have more than a limited interest, the write-up should be submitted to a national publication to keep all shooters informed.

Interests expressed in discussion centered upon greater accuracy, development of better ballistic data, better means of developing loads, and advanced testing techniques. With most men present having at least some wildcat experience, the subject of cartridge development was prominent. It became evident that this group may be expected to do a good deal of experimenting with past and present wildcat guns. In the past they have previewed many new factory shells with their wildcats. They hope to continue this foresight.

It takes time to do the extensive chronographing that a new cartridge or load requires, so efficient methods are needed. Therefore a demonstration of the proper way to align and handle screens, check and use a chronograph, to assure an accurate working speed of 120 shots per hour, with two men, was shown. Ten shots were tested in 4 minutes and 30 seconds. To do this a good working routine is needed, a good system of screens and holders is required, and fixed screen alignment is necessary. There was quite a bit of talk about various screens, holders, and ways of working them. About the easiest to handle, as well as least expensive, seems to be a muzzle wire or pencil lead for first, a Hollywood tape for second screen (arrange so that tape is pulled up from roll to remake).

THE FIRST AMATEUR MEASUREMENT OF MULTIPLE VELOCITY on a single bullet, to our knowledge, was the climax to the test session of this meeting. A circuit was set up and the muzzle velocity and time of flight of a bullet over a longer distance was actually measured for each of five shots, the circuit demonstrated being capable of recording three velocities for one projectile. Thus it is possible to get the muzzle velocity, time of flight and terminal velocity at 100 yds.

(or other reasonable range) with the firing of a single shot. This should prove of incalculable aid in determining ballistic coefficients and in checking bullet design. The circuit used and data recorded have been distributed to the associates of the group.

It was agreed that meetings of this sort are valuable to furthering ballistics experimentation. It was felt that better communications will be stimulated, and work advanced. Report bulletins will be circulated among the group as tests are completed, and write-ups of topics of general interest will be sent to PS. One such story has already been published, more will follow.

These meetings, and association with this group, is not closed, and any really serious worker is welcome to contact us. The only requirement is a willingness, the ability, and the means to carry out ballistic experiments. In fact it is hoped that the group will grow by natural association of those of similar bent.

The New Jersey-Pennsylvania group is made up of: R. J. Ceremsak, Trenton, N. J.; W. DeMott, Lebanon, N. J.; E. A. Fisher, Califon, N. J.; S. Glassow, Levittown, Pa.; C. H. Helbig, Scotch Plains, N. J.; V. F. Roma, Langhore, Pa.; and the writer, E. M. Yard, 110 Kensington Ave., Trenton, N. J.

CHRONOGRAPH CLINIC

A series of seminars will be held for one day this summer on chronograph techniques for amateur ballistics experimenters and others interested in bullet velocity measurement. These demonstrations will stress the practical use of velocity measuring equipment, showing the actual techniques that have proven most effective. A variety of screen types and arrangements and different chronographs will be used.

The advantages and disadvantages of the various means will be explained. Particular attention will be paid to the common difficulties encountered in using high speed timing equipment, and the methods of trouble shooting these. Opportunity for those attending to take part in the problem solving will be provided as far as practical.

This session will be an extension of a

meeting held in the spring, which, for the first time, showed means for amateurs to measure multiple velocities on a single bullet. The latest developments will be discussed.

Those wishing to attend should send a postcard to:

E. M. Yard, 110 Kensington Ave.,
Trenton 8, N. J.,

giving their address. They will be notified of the exact time of the meeting, and sent maps showing how to reach the range, located on Rock Road, about 5 miles from Lambertville, N. J., between Harborton and Mt. Airy.

The First Annual Chronograph Clinic is planned to be held at the YARD Test Range, Saturday July 15th (Rain date July 16th). Refreshments available at range.

Sponsored by Experimental Ballistics Associates.

THOUGHTS ON PRIMERS

By Fred W. Hallberg

It was my intention to continue this month with a discussion on boattail bullets but recent events in my home territory (Minnesota and the middle west) indicates an important immediate need for information on primers. What I shall try to describe is from my own experience and, of course, the opinions are my own. Incidentally, it would be of interest to learn whether or not shooters want this kind of information.

The primer acts as a spark plug and when a fully assembled cartridge is placed in a gun the assembly becomes a true internal combustion engine with free flying pistons. In fact, early experiments with reciprocating piston engines used black powder for the motive force. Many years had to pass before petrol products could be adapted to the purpose. These facts are interesting because it is possible to apply to the mechanics of shooting so many expressions commonly used in connection with gasoline engines. A built-in controlled powder burning rate produces an anti-knock effect. As with a gasoline engine, ignition must be strong but not too strong and it must always be uniform. Heat and flame ignites the propellant. Heat must be intense and uniform but the flash should not be violent.

Our concern with primers at Twin Cities Arsenal during Korea caused us to develop a very simple but significant test for comparing flash within and between various primer lots and for determining the characteristics of various makes. These tests were developed by ourselves although we later found that Ordnance had done approximately the same thing some thirty years previous.

First we constructed a blackboard from a piece of 3 ft. by 3 ft. plywood. One side was painted with a black non-reflecting material and over it we painted one-quarter inch vertical and horizontal white lines spaced two inches on centers so as to form a sort of checkerboard design. Next we cut off a barrel of a .30 caliber Springfield rifle just ahead of the chamber so that when an empty case was seated, most of the neck protruded from the muzzle. A two inch barrel chambered for the .45 automatic cartridge can also be used but the primer pocket of the .45 case should be deepened for rifle primers. However, the open barrel loses much of the desirable choking effect of the .30 caliber shoulder. Perhaps a shorter cartridge such as the .308 would be more desirable for this purpose than the .30/06.

The test is made by photography. The gun is mounted so that the muzzle just

BALLISTIC TEST REPORT (Sample)

TEST:

Check the effect of changing case and primer on a 6.5 MM x 55 load.

PURPOSE:

Military rounds with Berdan primer and new cases for Boxer primer are available. The intention was to compare these for reloading.

PROCEDURE:

Some military reloads (Danish) were chronographed. Then bullets were pulled from the military case, and the charge transferred to new cases primed with Boxer primers, and bullet seated to the same overall length.

RESULT:

These cartridges were fired from a single rifle. For reasons unknown, the Danish military reload with Berdan primer averaged 180 F.p.s. better than the identical load when transferred to new Boxer type primed cases. Care had been exercised not to lose any of the charge.

CONCLUSION:

It is well known that changes of components in reloading may have a profound effect upon resulting ballistics.

This is a case in example, presented to call this to your attention again, and to show quantitatively how much this can be.

It will be necessary to delve further into this to find the probable cause.

CHRONOGRAPH TEST:

ref		Velocity F.p.s.	Spread
183	Dan. Mil. Reload	2405	2380-2460
190	Dan. transferred	2225	2195-2240

By: Soren Glassow

overlaps the center of the left hand edge of the blackboard. A Graphic camera is mounted facing the board. The room is dark, the shutter open, and when the primer is fired the flash takes its own picture against the grid. Knowing grid dimensions, it is easy to ascertain and compare the magnitude of flash.

It is interesting to note that, when these tests took place, the old mercuric and chlorate corrosive primers produced practically no flash at all and with no flash there was little violence. Practically all the energy was converted into heat. We know these primers were very uniform and accurate. At that time the Federal non-corrosive primer most nearly duplicated the effect of the chlorate primer whereas all other non-corrosive makes produced a tremendously large violent flash. Now, it must be remembered that I am talking about events that took place some eight or nine years ago. There undoubtedly have been many changes in the various primer makes since that time. Cascade primers were not then available and I do not know their characteristics although I have since used thousands and like them very much. It is interesting to note that the latest Cascade primer utilizes the same type 3-legged anvil hat has almost become a trademark for Western.

Many other tests such as sensitivity and uniformity of ignition can also be applied to primers but they are usually beyond the capability of the amateur. Sensitivity is determined by dropping a steel ball of precise weight onto a firing pin from various specified heights. Uniformity of ignition is established by an electronic device which measures the elapsed time from the moment the firing pin is struck to the instant the bullet emerges from the barrel. It is usually done with 25, 50, or 100 round bursts in a machine gun capable of high rates of fire. The gun must also have a controllable hammer or firing pin such as is found in the Browning. A fast firing gun is necessary because rates of fire can be controlled downward only—not upward.

Primer ignition must not be so violent that it creates erratic velocities and it must not be so weak that it creates hangfires. Therein lies the main theme of this article. All other things being equal, greatest accuracy is obtained when the most compatible primer is matched with a particular type and charge of powder. The following examples illustrate what I mean.

A reduced charge of 18 grains Unique under a 150 grain jacketed bullet in the .30/06 should be ignited with a large pistol primer and not with a standard rifle primer. The hotter flash of the rifle primer seems to detonate the charge. Incidentally, a bullet with a protected base should be used with such a load. The heat of combustion sometimes removes enough lead from the open base of a GI-M2 bullet to foul the barrel quite heavily.

Large capacity cases, particularly when large grain slow burning powders are used, generally require the magnum type primer made by Cascade or the standard primer made by Western. I mention Western because I know that ball powder requires a hotter primer to properly ignite it and therefore I assume that all large primers now made by Western are of the hot magnum type. Whenever ball powder is loaded in any cartridge designed for the large primer, the magnum or the Western primer should be used. For standard loads with standard powders in .30/06 cases and smaller, I would use Remington, Federal, or Cascade standard primers. In this locality, most competitive shooters seem to like Federal and Cascade but that is just a fact reported for whatever it is worth. To me it has no particular significance.

A number of wildcat large capacity cases with very small diameter bullets are now in use. Such cases often use #5010 large grained .50 caliber machine gun powder. Whenever such a load is designed, Western or Magnum Cascade primers should be used exclusively. Federal at one time made a magnum primer. Whether or not they still do, I do not know.

INTERNATIONAL SHOOTING JACKET

Mr. Howard Smith, President of 10-X Manufacturing Co., has called our attention to a published announcement by the President of the Technical Committee of the International Shooting Union which states; "The manufacturers of shooting jackets have unfortunately not been particularly interested to obtain official approval of their products. Only the light American 'X-ring' jacket has for special reasons been provisionally accepted for the 1960/61 period."

This American "X-ring" jacket is the 10-X #202 Riflemen's coat, which was submitted to the Olympic Committee in Rome last August.

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Norma's made a dream come true for all handgun hunters and real gunbugs. Here's a .44 Magnum cartridge with super accuracy . . . tremendous shock-ing power.

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PAN-AMERICAN INVITATIONAL MILITARY RIFLE MATCH

The flags and firing uniforms of 14 nations provided a colorful spectacle at Empire Range, C. Z., as a total of 111 competitors took part in the 1961 Pan-American Invitational Military Rifle Match, March 20-24.

The U. S. Army Caribbean hosted this international competition, which saw USARCARIB's own Advanced Marksmanship Unit emerge with top team honors and Sergeant Ronald Turner of the unit win the Commanding General's Trophy as individual champion.

This second annual event drew entries from Bolivia, Colombia, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Uruguay, and Venezuela, with the United States being represented in competition by the USARCARIB AMU.

Activities began with a welcoming reception held simultaneously at the Officers' and NCO Clubs of Fort Kobbe on Sunday night, March 19. A buffet dinner was served at the visiting marksmen, who were officially greeted by Colonel Walter A. Downing, Jr., then USARCARIB Chief of Staff, who has since departed this command; and Colonel John F. Schmelzer, USARCARIB G-3.

Empire Range was available for practice firing on Monday and again on Tuesday morning. The competition officially opened with an impressive ceremony on Tuesday afternoon. With the teams of the 14 countries assembled, an international massed color guard from the 2d Battle Group, 10th Infantry, Fort Kobbe, presented the flags of each nation to the appropriate team captain. Colonel Schmelzer, representing Major General Theodore F. Bogart, USARCARIB Commanding General, made the welcoming remarks in Spanish and wished the competitors good shooting. The Colonel proceeded to fire the first shot to signify the start of competition, at which time all targets went down and came up with the Spanish word of welcome, "BIENVENIDOS" spelled out on the centermost targets.

Lieutenant Anibal Gomez R. of Colombia took first honors in the initial individual match that followed the opening ceremonies. Second place in this slow fire match at 200 yards from the standing position was taken by Sergeant Ronald Turner of the USARCARIB AMU, who later went on to win the individual championship. Another Colombian, Lieutenant Luis Marino, came in a close third.

When Captain Monod Philippe of Haiti took second place honors in Match No. 2, the pattern of things to come already begun to take shape. For these same three teams—Colombia, Haiti and the United States—were to make a clean sweep of all individual and team matches.

The U. S. entry went on to win all three team matches and the individual championship. This team, comprised of firers stationed on the Isthmus, was pressed hard all the way by two other outstanding performers, Colombia and Haiti.

All teams consisted of six men.

A highlight of the match was the appearance of the U. S. Army Advanced Marksmanship Unit from Fort Benning, Georgia. Made up of top marksmen from all major U. S. Army continental and overseas commands, this crack unit conducted a marksmanship clinic, fired an Infantry Trophy Match demonstration and participated in the team matches, though not for awards.

Much local interest was aroused by the



Lieutenant Luis Marino, Colombia (right), receives a medal from General Theodore F. Bogart, Commanding General US Army Caribbean, during an award banquet following the match. Lt. Marino won first prize in the 500 yard prone match and third prize in the 200 yard standing match.

appearance of a team from the Guardia Nacional of Panama. These Panama marksmen placed fourth in Match No. 6, the first team match, and fifth in the match finals, the firing of the American National Match Course.

When all results were in, the official tabulation showed:

200 YARDS, STANDING

Lt. Anibal Gomez R., Colombia	93-2V
Sgt. Ronald Turner, United States	92-1V
Lt. Luis Marino, Colombia	91-2V

RAPID FIRE, 200 YARDS

M/Sgt. Dean Brown, United States	100-2V
Capt. Monod Philippe, Haiti	100-9V
Sgt. Ronald Turner, United States	100-8V

RAPID FIRE, 300 YARDS

Sgt. Clyde Malpus, Jr., United States	98-6V
2nd Lt. Francois Benoit, Haiti	98-5V

M/Sgt. Lawrence L. Goody, United States	97-7V
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SLOW FIRE, 500 YARDS, PRONE

Lt. Luis Marino, Colombia	100-11V
M/Sgt. Dean Brown, United States	99-16V
M/Sgt. Lawrence L. Goody, United States	99-11V

AGGREGATE TOTAL OF MATCHES 1-4

Sgt. Ronald Turner, United States	386-31V
Lt. Anibal Gomez R., Colombia	383-22V
M/Sgt. Dean Brown, United States	383-33V

TEAM COMPETITION

RAPID FIRE—200 AND 300 YARDS

United States	582-28V
Haiti	574-31V
Colombia	541-14V

200 YARDS, STANDING AND 500 YARDS, PRONE

United States	879-80V
Haiti	862-73V
Colombia	856-62V

AMERICAN NATIONAL MATCH COURSE

United States	1455-114V
Haiti	1424-91V
Colombia	1407-78V

Lieutenant Gomez of Colombia and Captain Philippe of Haiti were the only repeat winners from the inaugural match of 1960. Both were first-place medal winners in the slow fire matches last year.

Climaxing events was an award banquet held at the Fort Kobbe NCO Mess on Friday evening, March 24, competition

having concluded that afternoon with the firing of the American National Match Course. After partaking of a steak dinner with all the trimmings, the individual winners, followed by the winning teams, came forward to accept their awards. General Bogart personally presented all trophies and medals.

In individual competition, gold, silver and bronze medals went to the first three places respectively, in addition to the award of the Commanding General's Trophy to the individual champion. Team Matches saw trophies go to the first three place teams and gold, silver or bronze medals presented to each firing member of these award-winning teams.

Overall match support, from providing living quarters for the visiting marksmen to working the targets in the range pits, was in the hands of the 1st Battle Group, 20th Infantry, Fort Kobbe, C. Z., under command of Colonel Hugh F. Richardson.

The man who first conceived a Pan-American rifle match, Major David B. Parsons, served as match director. Major Edward M. Turk of USARCARIB G-3 was project officer for the match, and Captain Ralph T. Heck, USARCARIB AMU officer in charge, functioned as match executive officer.

At the awards banquet, General Bogart expressed his thanks to these officers and "to all the others who helped to make this match even better than last year."

On the range it was evident that much planning and preparation had been accomplished beforehand. With the myriad of problems that arise during such an undertaking, things ran quite smoothly.

The match was one of the biggest of its kind ever held and, in the consensus of those directly concerned, 1962's event promises to be "bigger and better."

TOURNAMENT CIRCUIT

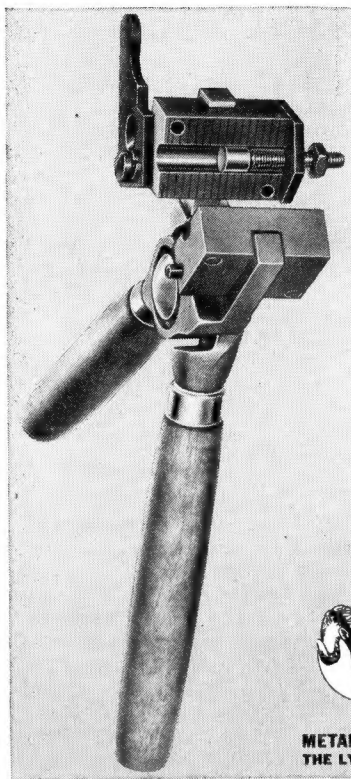
PENNSYLVANIA FREE RIFLE MATCH

T. Y. "Denny" Wu added another to his series of wins at Murrysville during the Spring Free Rifle match. The match was fired over the International 3-position course for small bore rifle in weather that felt more like late winter than early spring. Other than the unseasonable coolness, shooting conditions were generally good.

Shooting on the same Sunday morning relay, Wu and runner-up R. K. "Bob" Moore were in contention for the first position all the way through the course. Moore finished the prone stage with 394-7, 3 points ahead of Wu's 388-7. Wu made up his deficit with some good kneeling shooting, posting a 380-3 to Moore's 374-3. A single point separated the standing scores of the two contestants Wu with 349-1 and Moore with 348-1. In firing his winning score, of 1117-11, Denny Wu allowed only one shot as far out as the 6 ring, while second place Bob Moore stayed within the 7 ring to fashion his 1113-11.

Shooting in a Sunday afternoon rain, Fred Roeding of Sharon, Pa. finished ahead of the field in the any sight division with 1126-16. This score is a new range high for the scope equipped rifle.

Eight competitors shot scores over 1080, showing a gradual rise in the scoring level since these little matches were started in 1957. In September 1957, the present ISU (UIT) target came into use; the winning score was 1106 and only two other competitors made it over the 1080 mark.



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Firing point of the Murrysville Rifle Club (Penna.) free rifle range.

The shooter firing that winning score was T. Y. Wu!! While a small match such as this may never supply an International winner, a number of smaller matches as this held throughout the nation would certainly broaden the base of selection for International teams. Indications are that our civil populace could attain a respectable scoring level, given the opportunity to compete fairly often.

Match winner Wu and runner-up Bob Moore both used the Anschutz M54 as did nine other of the 25 competitors. 10 W 52's appeared on the firing line, most of these in the Dunlap or other thumbhole stock version. 2 Remington 37 s and 2 Hammerli's close out the equipment list.

Wm. R. Funk

PENNSYLVANIA-OHIO LEAGUE TOURNAMENT

A total of 118 senior shooters and 49 juniors competed in the 24th annual tournament of the Ohio-Penna. Rifle League at New Castle, Pa., April 8 and 9.

For the senior matches, Robert L. White, McKees Rocks, Pa. won the 4 position any sight match with a 395-20, William Funk, Murrysville, Pa. 2nd with 394-26 and Walter C. Sarver, Sarver, Pa. 3rd with 394-21.

Carl Allmendinger, Knox, Pa. won the 20-shot offhand match with a 193-6, Funk was 2nd with 192-6 and Earl Miller, Glenwillard, Pa. 3rd with 191-5.

Jean Linton, Akron, Ohio won the 4 position iron sight match with a 392-2, Robert K. Moore, Claysville, Pa. was 2nd with 390-23 and Bill Funk 3rd with 390-18.

The Frazier-Simplex five-man team from Washington, Pa. won the team match by a slim one-point margin over the Corapolis, Pa. team; 1960 to 1959 for the any sights 4 position course.

C. McClain, Fairmont, W. Va., won the 4 position iron sight junior match with a 383-16 score and Marilee Hohmann, also from Fairmont, was second and high girl with her 383-10. T. Schenz, Mogadore, Ohio, was third with 378-15.

METROPOLITAN RIFLE LEAGUE

At the April 16th Metropolitan Rifle League Individual and Two Man Team matches in Brooklyn, N. Y., Sam Tekulsky creedmored L. Aronsohn on 400-13x scores to win the individual 40 shot indoor match at 100 yards. Rans Triggs was third with 400-31. Eight 400 possibles were fired in the match.

(Continued on Page Sixteen)

National Bench Rest Shooters Association, Inc.

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Individual annual dues \$5.00 (includes magazine subscription for membership term). Associate member (wife or husband, son or daughter under 18 years of age, of member in good standing—no magazine) \$2.50. Life membership, \$75.00. Annual club affiliation fee \$10.00.

PRESIDENT'S CORNER

This will be the last opportunity to remind all members of our National Varmint and Sporter Championship Matches at Augusta, Ohio, on July 21-22-23. Early reservations and information indicate a record attendance. If you miss it I am sure you will be missing one of the high points of the season.

I expect to have some information on the National Matches at Johnstown, N. Y. next month.

There are a few spots that indicate a small start of a controversy on our Varmint rifles. The following is an attempt to present some information for each member to study this problem, not only for his desires, but also with a view as to what is best for the N. B. R. S. A.

This is a democratic organization and your officers will heed the wishes of the majority, but let us be sure it is for the good of the membership and our organization.

There is an opinion by some shooters that the varmint rifle should be purchased from standard stock, over the counter. This claim is supported by a lower cost and a possible inducement to obtain additional shooters in the Varmint classes. Another version is that the sleeved and special feature actions are unfair competition.

The very first sentence under the "OBJECTS" of the N. B. R. S. A. says "The development and encouragement of extreme accuracy in rifles, ammunition,

equipment and shooting methods." NOW, let us suppose that when our organization was formed they would have included a rule that all rifles be purchased over the counter. How much would we have improved the accuracy of the rifle? The accuracy of today's rifle came through the freedom from restrictive rules, and the experimenting of the shooting members. True, the unrestricted bench gun is not a practical gun for field use, but the knowledge gained in the use of the heavy rifle is being applied to the Heavy Varmint rifle and from there to the Light Varmint rifle, and that is a practical rifle for field use. Proof of this is the fact that we have Heavy Varmint rifles today that equal the performance of our unrestricted rifles of five or six years ago.

Ours is the greatest testing and proving ground in the world. No gun company could afford to pay for the time and experimenting that is done by the members of this organization. It is true that many of the things tried did not work but the accuracy of today's rifle proves that results were obtained far beyond expectations. Let us think clearly of both sides of this situation before we pass judgment or impose restrictions.

Until July,

Bob Hart

1961 BENCH REST MATCHES

NORTHWEST REGION

Renton, Washington: Aug. 12-13 (registered, unrestricted and Varmint classes); July 16 (not registered, Varmint and Sporter classes); Seattle Precision Shooters Club, Roy E. Meister, 3937 Ashworth, Seattle 3, Wash.

GULF COAST REGION

San Angelo, Texas: August 12 and 13; Texas State Varmint and Sporter Rifle Bench Rest Championships; (Mrs.) Marie Spencer, Box 1243, San Angelo, Texas.

MID-CONTINENT REGION

Wichita, Kansas: Sept. 30; Varmint class; Aug. 12, Oct. 15; Wichita Bench Rest Rifle Club, Larry Engelbrecht, Sec'y, 122 Gow, Wichita 3, Kansas.

Kansas City, Kansas: Aug. 5, and Oct. 21; Mill Creek Rifle Club, Inc., L. F. Carden, Sec'y, 2211 North 44th St., Kansas City 4, Kansas.

Tulsa, Oklahoma: July 15, Aug. 19, Sept. 16, and Oct. 8; Tulsa Bench Rest Rifle Club, Inc., E. A. Anderson, Sec'y, 3604 So. Toledo; Tulsa, Oklahoma.

EASTERN REGION

(Unrestricted Rifles)

Augusta, Ohio: Aug. 19, Sept. 16-17; Reed's Run Rifle Range, P. O. Box 66, Augusta, Ohio.

Plainfield, New Hampshire: July 15-16, Sept. 17; Plainfield Rifle Club, Leslie R. Stone, Plainfield, N. H.

Easton, Ohio: July 29-30 (Ohio State Championship); Chippewa Rifle Club, Nelson Berger, Sec'y, R. D. 1, Box 192, Marshallville, Ohio.

Southboro, Mass.: Aug. 13, Oct. 15; Southboro Rod & Gun Club, J. W. Baldwin, P. O. Box 402, Westboro, Mass.

Lewistown, Pa.: July 1-2 (Eastern Region Championship); East End Blue Rock & Sportsmen's Club, P. J. Aurand, Milroy, Pa.
Dryden, New York: Aug. 26-27 N. Y. (State Championship); Dryden Fish & Game Club, Russ Cuatt, Sec'y, 113 Park St., Ithaca, N. Y.

Johnstown, New York: Aug. 31 and Sept. 1-2-3 (National Championship); Pine Tree Rifle Club, Inc., Johnstown, N. Y.
(Sporter and Varmint Rifles)

Augusta, Ohio: July 21-22-23 (National Championships); Reed's Run Rifle Range, P. O. Box 66, Augusta, Ohio.

Dryden, New York: Aug. 5-6 (Eastern Region Championship); Dryden Fish & Game Club, Russ Cuatt, Sec'y, 113 Park St., Ithaca, N. Y.

Fassett, Penna.: July 9, Aug. 20, (Penna. State Championship), Sept. 24; South Creek Rod & Gun Club, Gerald Arnold, Sec'y, 111 N. Halett Ave., Horseheads, New York.

NATIONAL SHOOT PREPARATIONS AT JOHNSTOWN

The Pine Tree Rifle Club, hosts for the National Bench Rest Championships August 31 and September 1-2-3, are busy making preparations for the comfort and convenience of competitors.

There will be sleeping room available in club buildings at the range for up to approximately 50 men. Persons wishing to sleep at the range should bring their own sleeping gear; cots and bedding or sleeping bags and air mattresses. There will be no charge for this convenience. Meals will be served at the club house throughout the shoot period. Washroom and toilet facilities are available in the main club house.

The lounge at the main clubhouse is being enlarged for the comfort and convenience of all competitors.

For the convenience of the tent and trailer campers, tap water and toilet facilities are being installed in the camping area in back of the firing line. There will be plenty of space available for all those who wish to camp and the good meals at the club house make cooking chores unnecessary.

For those who do not wish to camp there are good hotels and motels available in and near both Johnstown and Gloversville, all within a few minutes drive of the range.

Shooting-wise, the experience of the Pine Tree Rifle Club in conducting large bench rest shoots since the very beginning of present-day bench rest shooting assures a smooth and efficiently operated tournament on the 50 bench range.

Johnstown and Gloversville are at the southern edge of New York's famed Adirondack Park, an inland lake and forest area larger than some whole states. This entire region is rich in early America historical background and lore and there are many points of interest for the ladies of family parties to explore while the menfolks are shooting.

Easton, Ohio: July 29-30 (Ohio State Championship); Chippewa Rifle Club, Nelson Berger, Sec'y, R. D. 1, Box 192, Marshallville, Ohio.

NORTH CENTRAL REGION

Custer, South Dakota: Aug. 12-13 (Varmint & Unrestricted); contact Walt Siewert, Custer, South Dakota.

Buffalo, Wyoming: July 15-16 (Unrestricted and Heavy Varmint), Sept. 10 (Sporter), Buffalo Outdoor Rifle Club, Martin Pelloux, Sec'y, Clearmont Rt., Buffalo, Wyo.

Iowa Falls, Iowa: Unrestricted rifles, night shoots—July 8, Sporter and Varmint Rifle—July 9, Sept. 10; Iowa Falls Rifle, Pistol and Trapshooting Club, Inc., Verle W. Hunt, Sec'y, Ackley, Iowa.

MISSISSIPPI VALLEY REGION

Florissant, Missouri: Aug. 20 (Unrestricted class); Nine Ring Sportsman's Club, Roger French, Sec'y, #15 Charlotte, Florissant, Mo.

St. Louis, Missouri: Unrestricted rifles—July 9 (Mo. State Champ.), Aug. 27 (Regional Champ.). Heavy Varmint class—July 16. Sporter class—July 16, Aug. 13; Bench Rest Rifle Club of St. Louis, Arthur M. Freund, Sec'y, 2730 St. Vincent Ave., St. Louis 4, Missouri.

Windsor, Illinois: July 15, Aug. 12, Sept. 9 (Ill. State Champ.); all matches are for unrestricted rifles and all are night shoots; Windsor Rod & Gun Club, Inc., Robert E. Adams, Sec'y, Windsor, Ill.

SOUTHWEST REGION

Richmond, California: July 8-9 (Calif. State Champ.); Richmond Rod & Gun Club; programs from John B. Sweany, 187A Silverado Trail, Calistoga, Calif.

Fresno, California: Regional Championship in Aug. or Sept.—dates not yet set; Contact—Henry C. Wright, Fresno Rifle Club, 4663, East Olive, Fresno 2, Calif.

Bench Rest Match Reports

ST. LOUIS, MISSOURI

Seven competed in the registered Sporter matches conducted by the Bench Rest Rifle Club of St. Louis, May 7th. Shooting conditions were bad, with rain for the last three 200 yard matches, wind strong and gusty, and light variable.

Jim Ernst, shooting a .257 Roberts in standard 722 Remington rifle with 4-10 variable scope was 2nd at 100 yards with 1.346, first at 200 yards with 1.341 and won the grand aggregate with 1.343 MOA. Walter Strippgen, shooting a Ted Holmes barrel in .243 Win. cal. on Mauser action with 4-9 variable scope by United, was 1st at 100 yards with 1.236, 2nd at 200 yards with 1.536 and 2nd in the grand with 1.386. A. Phillip Broderick, shooting in his first bench rest match and using a factory Remington 722 in .244 Rem. cal. with Weaver 8X scope, was 4th at 100 with 1.486, 4th at 200 with 1.743, and 3rd in the grand with 1.614.

Due to flooding of the range the Heavy Varmint class match scheduled for May 14th had to be postponed and that program was fired after the Light Varmint matches on May 28th. Conditions for the first three light varmint rifles were not bad but started to worsen after that, with increasing gusty fish-tail winds, temperature getting into the 80's and a very heavy mirage.

A. J. Freund won the light varmint grand aggregate with a .872 MOA. Frank Muriel second with 1.079 and Walter Strippgen third with 1.234.

Following the light rifle matches, 14 shot the heavy varmint rifles in conditions so bad that shooting experience was the main factor in determining the aggregate rankings. William Schellert won the grand aggregate with .549 MOA, his wife Barbara was second with .595, Al Walter third with .627, and A. Freund fourth with .663.

AUGUSTA, OHIO

The Sporter and Varmint matches at Reed's Run Rifle Range on May 6th had a light entry of 18 shooters, nearly all of whom are experienced unrestricted rifle shooters. There were five entries in each the Sporter and Light Varmint class matches and seventeen in the Heavy Varmint class. There were some light showers during the 100 yard shooting on Saturday, with lots of wind and showers during the latter part of the 200 yard shooting on Sunday.

Paul Gottschall won the Sporter grand aggregate with .6934 MOA. Dempsey Frost won the light varmint aggregate with .6963 and Gene Beecher second with .7062. Harold Campau won the heavy varmint grand with .5262, Alan Hundt second with .570 and Dempsey Frost third with 5861 and George Kelby fourth with 5997.

Some 40 shooters competed in the unrestricted rifle and heavy varmint rifle class matches at Reed's Run on May 27 and 28. A light snow fell several times during the 200 yard shooting Saturday and wind conditions were bad both days.

For the unrestricted rifle class, Olin Davis, Alexandria, Va., won the 200 yard aggregate with .696 MOA. Ralph Stolle, Landover Hills, Md., was second with .7149 and his son Eldon third with .7555. Eldon Stolle led the field at 100 yards with a .4392 aggregate to clinch the NMC aggregate with a .5974 MOA. Clyde Yockey, Apollo, Pa., was second at 100 with .4886. Ernest Scafuri, Detroit, was third at 100 with

.5296 and second in the NMC with .6701. NBRSA secretary Bernice McMullen was third in the NMC with .6858.

The 200 yard stage for the heavy varmint rifles was fired as an extra relay after the unrestricted rifles. After the 200 yard firing was finished the targets were moved back to 100 yards and the varmint matches finished that evening and finishing about 10:30 P. M. For the aggregate at 200 yards it was Paul Gottschall .6005. Ed Shilen, Dryden, N. Y., .6883, and Al Johnson, Detroit, .7496. At 100 yards it was George Kelby .3958, Ted Boughton, Rochester, N. Y., .4062, and Shilen .4252. Paul Gottschall won the grand with .5376, Shilen second with .5568, and Boughton third with .6120.

IOWA FALLS, IOWA

Six shot unrestricted bench rifles at Iowa Falls, Iowa, Saturday night, May 6, under ideal shooting conditions. Joe Dunnington won the NMC aggregate with .4812 MOA, placing 3rd at 100 yards with .469 and winning at 200 yards with .4935. John Moschkaw placed 2nd in all three aggregates; .456 at 100, .5347 at 200 and .4954 for the NMC. Gerald Wilkinson won the 100 yard aggregate with .439, was 4th at 200 with .5771 and 3rd in the NMC with .5081.

Heavy varmint and Sporter class matches were fired on Sunday, May 7, under partly cloudy sky and very gusty wind conditions, with 8 entries for varmint and 11 for sporter.

John Moschkaw made a clean sweep of the heavy varmint aggregates with .6096 at 100 yds., 1.1075 at 200 and .8585 for the grand. Joe Dunnington was 2nd at 100 with .7633, 4th at 200 with 1.4624 and 2nd in the grand with 1.1128. Verle Hunt didn't make the top four at either 100 or 200 yards but was 3rd in the grand with 1.460.

Willard Lange won the Sporter grand with .9433 MOA, the 100 yard with .624 and 2nd at 200 with 1.2625. Verle Hunt was 3rd at 100 yards with .9126, won the 200 with 1.012 and was 2nd in the grand with .9623. Harold Bing was 3rd at 200 with 1.284 and 3rd in the grand with 1.1431. Only four shooters were able to get through the five fired Sporter matches at 200 yards without disqualification.

WICHITA, KANSAS

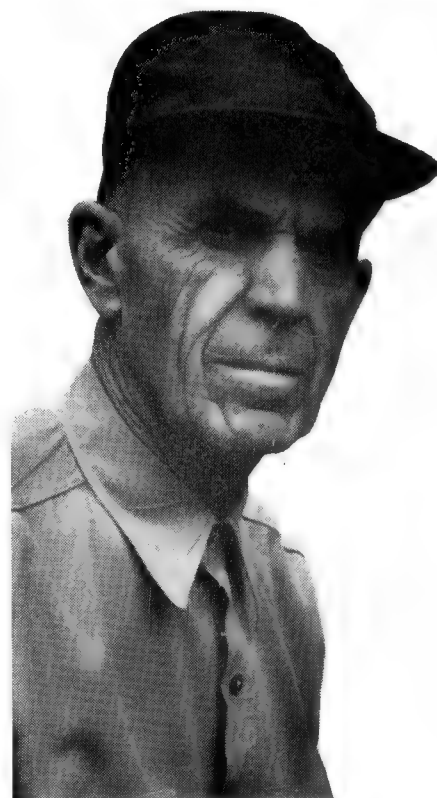
At the Varmint Rifle shoot in Wichita on May 6 the Wichita club secretary, Larry Engelbrecht, borrowed a rifle from clubmate Charles Kunkle and proceeded to "clean house" with it, winning the 100 yard aggregate with a .4938, the 200 yard with .3988 and the grand with .4463, and in addition he made small groups at both 100 yards (.262) and 200 yards (.418). Larry reports that this is the first time he has shot a light rifle in competition in some three years and that is the first bench rest aggregate that he has ever won.

"Red" Cornelison was second in the 100 yard with .5310, third at 200 with .4568 and second in the grand with .4939. Charley Kunkle couldn't keep up with his own gun in the hands of Engelbrecht but he did place third in both the 100 yard and grand aggregates and fourth at 200 yards. James Mayer was second at 200 yards with .4415. Shooting conditions for the match are reported as ideal, a windless, cloudless night.

But weather conditions for the club's unrestricted bench rifle match the night of May 13th were all bad; a driving rain storm during part of the shooting and gusty winds so strong it was impossible to keep a backer working and at one time blew a target

(Continued on Page Twelve)

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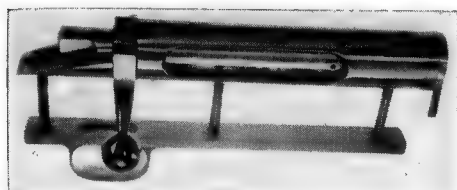
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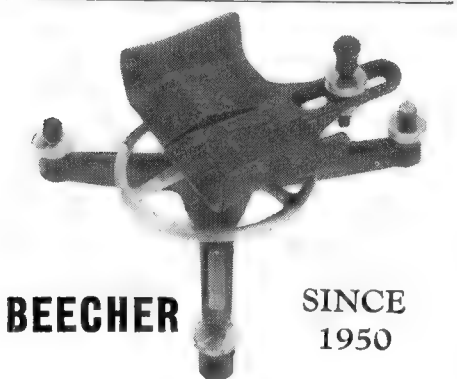
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Bench Rest Match Reports

(Continued from Page Eleven)

frame off the butts while a match was in progress.

In spite of those conditions, Horace Powers shot an outstanding .3645 MOA 200 yard aggregate, which with his second ranking .557 at 100 yards put him way out ahead to win the NMC aggregate with a .4607. Dixon Herman won the 100 yard aggregate with a .548 and was second in both the 200 yard (.5815) and the NMC with .5647. L. F. "Bud" Carden was third in all aggregates, getting .566 at 100, .6083 at 200 and .5870 in the NMC aggregate.

SEATTLE, WASHINGTON

The Seattle Precision Rifleman, Inc. are testing a different "Buddy" match program in their light rifle shoots at the Renton range as a means of getting new shooters started right in bench rest competition. Instead of the new shooter shooting with one experienced shooter for the entire shoot, they fire each match with a different experienced shooter, thereby gaining from the experience of several men instead of just one. At the first trial on May 14th there were eight teams, each new shooter being able to shoot the rifles and learn the technique of five experienced shooters. The new shooters were enthusiastic and quite convinced they had learned more in a short time than would have been possible by any other means.

In the individual matches prior to the "Buddy" matches, all at 200 yards, Ed Hilton's .968 aggregate for five 5-shot matches took the honors in the 10 1/2 lb. rifle class. Stan Baker took first place in the 13 1/2 lb. rifle class with his 1.128 average, with Roy Norman second (1.426) and Amos Fromback third with 1.1428 average.

ALLENTOWN, PENNSYLVANIA

The Crooked Creek Benchrest Shooters held the first of their 1961 shoots on May 21 with Larry Nuesslein having smallest group with .22 cal. (.388") and also with cal. larger than .22 (.764"). Roland Hilbert was second with .22 cal. (.434") and Norton Cope second with larger cal. (.924).

This group holds two matches each month from May through October on the Guthsville Rod and Gun Club range, shooting rifles of the varmint and sporter classes. Bruce R. Romig, 726 Chew St., Allentown, Pa., is the club secretary.

BEGINNERS CORNER

By Robert Stinehour

As I write this I have just returned from a very pleasant visit to Clyde Hart. For some time he has been plagued by customers ordering barrels a specific size and insisting that he meet these specs. Some time back a fellow ordered one .22395 (am

not sure these are exact figures—and evidently was serious. Clyde being the good fellow he is, and not having a short fuse as I have, bends over backwards to try to accommodate.

Without his knowledge I am writing this to try to take some of this pressure off of him, for he is **very concerned** about this matter. While I myself like my barrels somewhere near the size of my bullet dies, I honestly believe that two tenths one way or the other in size will make **NO** difference in the accuracy of the finished rifle.

Much has been discussed on small bullets in big barrels, and big bullets in small barrels, but **no one** has **proven** anything one way or the other.

We all, in the shooting game, small bore, big bore and bench rest, owe the Harts a great deal for the splendid contribution of such a high percentage of extremely accurate barrels, so let's show our gratitude, and some good common sense, by not making their task any harder than it already is.

It seems that when barrels are running .2239, everyone wants .2242, and when they are running .2242 the request is for .2239. I personally will take anything I get, and be glad to get it, for I know that my money can not buy anything that will make smaller holes in the paper.

Along with the barrel makers, the gunsmiths and stockers have their headaches also. I have lost stocking jobs because among other specs the customers wanted the new job bedded in glass. I guess everyone by now thinks I hate glass. This is not so, for I have used glass to very good advantage on several repair jobs and where nothing else could be done. It has its place, and is excellent in its place. For instance, on the military weapons it has been pretty well proven that a proper glass job puts them in shape and pretty well keeps them that way. Like a bedding job in the wood, a glass bedding job must be done right and in some cases can be harder to get right than bedding in the wood. It isn't just a matter of hogging out a lot of wood, slopping in a lot of glass, and reefing up the guard screws. Many are of the opinion that this is all that is necessary for a "cure-all" for every erratic shooting rifle. If **properly** done it will improve many of them.

On a new rifle stock, especially a bench rest or free rifle, it is like a slap in the face to ask a stocker to glass bed it, for it's as if you do not trust him to do a proper job in the wood.

Another pet peeve is the use of excess finish by a customer to the extent of completely upsetting a good bedding job. Recently a local friend brought back his sporter for me to check over. Originally I had rough-shaped a new stock for it and spent several hours getting a nice bedding job (F. N.) with at least 80% bearing of metal to wood. He took it home and first of all test fired it, and it shot fine. So he disassembled it and finished it up; sanding, finish, etc. After many coats of G. B. both inside and out, and not properly dried between coats, he reassembled it, and off to the range. Findings? "No shootum good." So, down to Gimpy Bob (an Indian up in Maine has a different name for me, but I don't know what it means) and before I took it apart I had a good idea why "no shootum good." Findings. About 10% bearing of action to wood due to excess finish piled up in the corners and small areas; enough to even give the action "spring," and the action tang making contact to wood where it had originally been relieved.

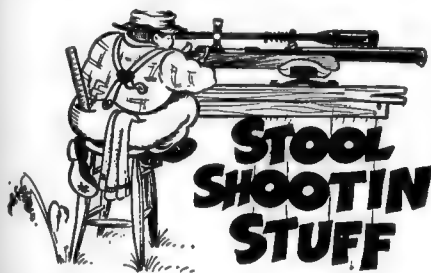
Much scraping. Reassemble. "Adois Bob, off to the range." Much later, telephone jingles. "Hello, Bob?" "Yes?" "Shootum good."

As I had said before, no finish will completely eliminate moisture from a stock, so why pile it up like this? Sure, it may keep it out a **little** longer, but when it gets in, and it will, it will also keep it from getting back out.

Another bad practice also has to do with oil, but this time it's gun lube oil. So help me, some fellows should have a crank case on the bottom of their action, with a sump and oil pump to pump it back upstairs, like on their auto. A couple of weeks ago a nicely stocked (don't know whose job) Springfield sporter came in for me to have reblued. When I removed the bolt and the oil actually dripped off it to my wife's kitchen floor (wife's words censored) there wasn't much doubt in my mind as to the condition of the wood under the action. Yes, it was pretty well rotten, like an old punky stump. It has a little time left, but like many a fine stock I've seen before, **it's had it!** Nothing will ruin a stock faster than excess lube oil soaking into it, or these spray cans which some use to spray the whole weapon.

On the slide type actions I use a light oil, **VERY SPARINGLY**. On my bolt actions, just a touch of grease on the lugs. For the outsides on all my guns, I wipe thoroughly the stock and metal with a Silicote Gun and Reel Cloth, made by the Silicote Corp., Oshkosh, Wis., and available in most sporting goods stores. We have much humidity in our Hudson Valley but I have never seen the slightest rust spot on any of my equipment since using these cloths. Reasonable and they last indefinitely.

(Editor's note. Bob Stinehour has changed his address, which is now: Rd. #3, Box 1860, Wallkill, New York.)



Dear Phil:

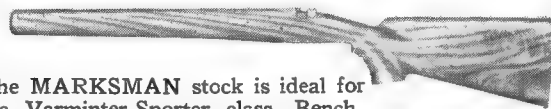
By the time this is published, we will be right in the midst of the shooting season and probably records will be falling as they almost always do with each new season. As a matter of fact, I enjoyed being one of those present at the Dryden shoot where some of the statistics were being changed for the records.

I hardly knew whether to attend that first shoot at Dryden or not. I had gone there last Spring and had half frozen to death as I slogged through mud and water from the loading point to the benches as I had to pass through terrain that was more suitable for a moose swamp than a shooting range. Perseverance pays dividends, though and this year I found the range and the approaches to it greatly improved, and I feel certain that more and more shooters are going to enjoy attending the Dryden matches. Conditions were a little rough at 200 yards and it was a bit difficult to keep track which way the mirage was shifting. There was a good attendance of capable varmint shooters and it was evident that the shooters of those rifles had learned that in spite of the smaller stocks and slimmer

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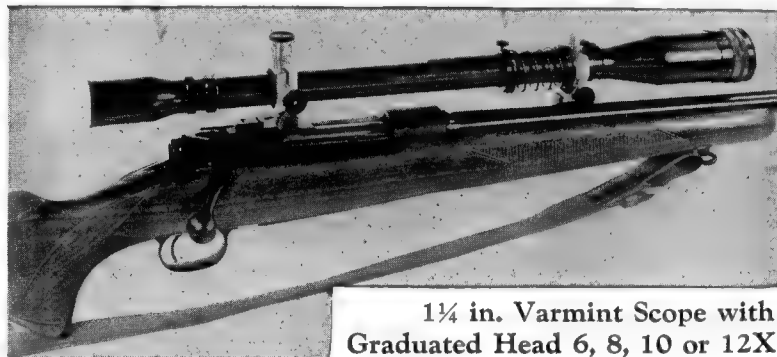
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barrels, amazingly small groups can be made.

Colonel Whelan a half a generation ago was trying hard to steam up the boys in the benchrest game to develop a rifle that would print those very small groups and still be convenient and practical to carry around in a car or across a field to cause the demise of a crow or woodchuck. I always felt sorry that his words were reaching so many deaf ears and that the few special or merchandise events that occurred in the early benchrest matches finally petered out. Colonel Whelan's insistence that through the efforts of many minds and hands, a light rifle could be deadly accurate is now bearing fruit, and that grand old gentleman is entitled to put another feather in his cap because he pointed out far ahead of many others a road to more pleasure and progress in still another phase of the shooting game.

I got caught badly in the 200 yard matches at Dryden but when it came to the 100 yard events, I was going on my quiet little way and making some pretty small blotches down there, one relay after another. Ed Shilen who does such a creditable job making rifles and spark plugging the little Dryden events, was carrying the extra burden of trying to lower his own aggregate record for five five shot 100 yard matches of .343 and was doing pretty well. We, who didn't have the load of running the matches had an advantage that he couldn't cope with. Crawford Hollidge felt pretty pleased to walk off with an aggregate of .340 and not at all badly because two other shooters had broken through to a still lower mark than his and Shilen's aggregate, and I think you will probably be publishing elsewhere official news of a new record.

(Continued on Page Fourteen)

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Stool Shootin' Stuff

(Continued from Page Thirteen)

These new small groups which are being made more and more frequently are going to make the benchrest game grow. They are irrefutable evidence that small groups are not freaks but an indication that elements have been learned which, if faithfully adhered to, will probably make your gun shoot such groups. You, of course, will have to shoot well and with your ability have the assistance of good old Lady Luck who in resting her hand upon your shoulder, keeps you from judging wrong, the wind, mirage or light changes. You will have to have bullets that will do the job and measure your powder. The primers will need to be good and the flash holes uniform, and your cases carefully matched. The friction with which the neck grips the bullet as well as the proper seating depth of the bullet for your rifle, are important. Don't forget the size and shapes of your rims, and the way in which your extractor contacts them. Perhaps your rifle needs frequent cleaning, or it may do better to stay fouled for several relays. Your rear sandbag may be too soft and some shooters definitely shoot better snugging the rifle while others achieve their best results with only the slightest contact of a finger on a sensitive trigger.

Don't try to cover the line with your telescope in the midst of the match to see how well or poorly other shooters are doing. Concentrate on your own problem and then after the relay is fired, look up and down the line, not to see how well you did especially but to see how well you could have done if you had guessed things right. A little word of compliment to the guy who did a good job makes the game a better one and if perchance the shooter was one who had not been getting small groups, your kind words will help him get more. He'll probably stumble back with some comment to the effect that even a blind hog finds an acorn once in a while but that's all right for him to say but a mighty poor attitude for another shooter to have toward one of his competitors. There are fellows who are kept in this game from one year to the next by the friendly attitude along the line and there is nothing so good for the game as to see a new chap come along fast, or an old timer come back on the winning list, after a period of absence.

Yes, shooting all day little groups where every shot would hit the end of a ball pen head on at 100 yards is an intriguing accomplishment but the friendliness, tolerance and good will, and true sportsmanship add greatly to it, and the fresh air and sunshine that we get is good for us all.

Wasn't that a nice little shoot at Plainfield, especially after the scare that we got in the morning hours with the overcast and showers. I thought I was snugged up pretty well with my pop tent and station wagon but I guess if Merrie and I are going to attend those first Spring shoots in the northern latitudes, we'll have to add a fireplace to the list of gear that we carry. How I'm going to get a fireplace in my station wagon with everything else that I lug along, I haven't quite figured out but I have gotten to the extent of adding a little heat as well as light by one of those inverted gasoline pressure lanterns.

I have devised a new use for the pop tent, too. It's a great little gadget for shooting out of on a cold and windy day. You can place a portable bench in it and by shooting right through the opening formed by the tunnel to the car or station wagon. (Merrie Stuhlschuter has given me a good laugh by telling me to remind you

fellows that the station wagon or car should be removed from the opening and the tunnel propped up by some practical method before starting the shooting.) I have heard tell of shooters being absent minded enough to go to the line without primers in their cases, but I really do think that most of them would take their car out of the way before shooting.

The mention of primers reminds me of a little difference in opinion that seems to exist between me and one of our most capable fellow shooters who writes both a more widely distributed and profitable shooting column. Cape Codders can be stubborn, yet I hope that if I am wrong, I will eventually see the light, but as of this moment, I still maintain that the new Speer #250 primer has helped me shoot some mighty small groups. Not only was I impressed with the small groups but I noted with keen interest a very clean barrel after firing each shot and this has always seemed to me to be a finger pointing in the direction of greater accuracy. It is hard to indicate how much harm occurs to a bullet when it rides over a hard grain of powder as it irons it between the barrel and the ogive of the bullet, but it certainly can't help it much from the accuracy standpoint and it must add to barrel wear. Try some C. C. I.'s in your rifle and I think you will notice what I speak of as well as see that there is less deposit on the inside neck of the case which to me must indicate that the entire inner wall of the case remains cleaner. That must be helpful also because it tends to keep cases from fouling up with the powder carbon deposit which in time alters both the shape and contents of the combustion area. Notice the reduced amount of ash in the primer pocket and the sharper cleaner flash hole. If you still have to be convinced, for the tiny little bit it is worth, you will find that after removing the primer anvil, the spent primer cup is practically free of a carbon deposit. In my chronograph, I cannot be sure of an increased velocity and if there were much difference in pressure, I believe the tests would vary. The fact that I am currently enthusiastic about these primers does not indicate for a moment that I do not believe that primers by other makers are very satisfactory. If stored and cared for properly, they seem to be marvelously uniform. It is undoubtedly true that primers like all other items that manufacturers use extreme care in making can have the finest work nullified by abuse. You certainly can't store them in a damp or humid area or seat them into your cases with a seater that half crushes the priming mixture before the cup is in place.

It seems to me to be good policy in life to talk up the good things about people and products and to be tolerant enough with the other persons viewpoint or way of life to allow him to maintain it and even promote it without considering him a public enemy. To this end, I believe that friend Herman of Omaha contributed a mighty fine effort in his positive attitude towards improving the big Balvar scope. I was particularly interested because my magazine copy arrived only a few days after I had ordered and received a series of aluminum castings for a unit identical to the one which he described. Homer Culver and several others have been making for their own use and that of a few friends, such a unit for several seasons. To my scope, I add a "return to zero" device and I like, too, very much the fine round dot that Bob Thomas of Mukwonago, Wis. makes and installs in the Balvar 24 in place of the tapered cross hair reticle.

Bob is also making another new gadget that we are going to enjoy when the hunting season comes along. He calls these Weather Caps and they come for all popular rifle scopes. They slide on each end of a hunting scope without reducing the lens apertures or the optical field of the scope and they prevent the scope from fogging as well as protect the carefully ground and coated optics. The reduction in light transmission is not recognizable, and they are waterproof and unbreakable, and because they have no edges to hold rain, dirt or snow, they can be cleaned instantly. If I had a shop which was frequented by a lot of hunters instead of an occasional target enthusiast, I am sure I would pedal out a lot of them for \$3.50. It is a small price for insurance against damage to a critical and costly scope.

I was interested in reading the list of events and the schedule for the sporter and varmint class that are to determine the national winners at Augusta, Ohio, July 21st, 22nd and 23rd. I hope the readers are getting their equipment well organized. It is a nice range, competition will be keen and from some of the shooting I have seen going on lately, there are some new entries in the field who are going to make this a sporting event from daylight to dark for each of the three days.

Cordially yours,

Ernest Stuchluchter

The Information Bench

The Information Bench service is available to all Precision SHOOTING readers. With your questions, send a stamped, self addressed return envelope for a reply. Selected questions and answers, covering as wide a variety of interests as possible, will be published in these columns. Address your questions to the following people.

Rifles, all types, accessories, handloading, components and shooting methods:—**R. W. Lathrop, The Information Bench, 3207-148th Ave. S. E., Bellevue, Washington.**
Sporting handguns and loading—**Kent Bellah, Saint Jo, Texas.**

Question: There is just one thing about the Rem. 722 action that bothers me. Namely, the ejector and the side pressure it exerts on cases. I am referring particularly to the .222 cal. which slams these little cases against the side of the receiver ring hard enough to bend case necks.

I have wondered if this might affect accuracy in any way. I have been considering shortening the ejector spring or removing it completely, so that the cases could be picked out with the fingers since I never load the magazine and am only interested in preserving my cases with the least possible damage. Seely Masker, Pleasantville, N. Y.

Answer: The problem you have with the 722 action is one that bothers all bench shooters who use this good action. I solved mine by making the spring weak enough so that the case was not flipped. I have at times taken the ejector rod and spring out and leaving them out. This will cause no trouble unless real high pressures are used which could cause the case to push into the ejector hole.

If the case mouth is properly reformed and made straight by resizing, then the slight bend caused by ejection will not cause any trouble. **R. W. Lathrop**

Question: I have a 1955-45 Target S&W that I purchased in March, 1960, that has approximately 500 rounds through it. Today was the first time that I used a lot of government issue cal. .45 M1911 that had been sent to our club by the DCM and I ran into trouble. I loaded five rounds in



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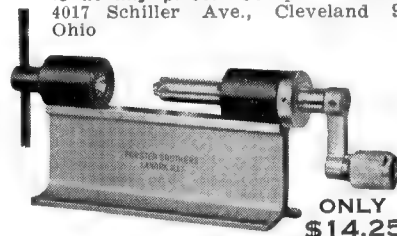
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clips, and when I fired one shot, I was unable to cock the piece as the cylinder refused to turn. With great difficulty I was finally able to swing out the cylinder and then turned to the next cartridge. The same thing happened again and was repeated on all the rest of the cylinder full. The cartridge seems to set back on firing tight against the frame and jams so hard that it leaves most of the red lacquer from the primer seal on the frame and will not let the cylinder turn. At first I thought I had trouble from a bent half-moon clip, so I tried again, using carefully selected clips, but the same thing happened again. Both times I also experienced extraction trouble and had to tap the extractor rod with a piece of wood to loosen the empty cases.

Then I changed ammunition to a mid-range reload sold by a Miami gun shop with a lead bullet similar to Ideal 452-389. No trouble was experienced whatsoever with 10 rounds of this.

The lot I had trouble with was lot TW S 18301. The cases appear to be of steel, brass plated. Possibly they expand and set-back and then fail to resume their

shape again. Can you give me any help? LeRoy Horton, Sarasota, Florida

Answer: Steel cases were used as a wartime substitute for critical brass. Most are cold worked steel with a barrel plated chromated zinc surface. They are not entirely satisfactory in either revolvers or automatic pistols, and especially some makes and lots of ammo.

Auto pistols sometimes function better with steel cases in some lot numbers and makes. My Colt Commander jams with all lots and makes I've tried, and the extractor has broken twice. An officer was killed near here in a gunfight while trying to unjam a brand new .45 Automatic loaded with steel case ammunition.

I consider your surplus ammunition garbage. When steel case walls expand from firing they do not "snap back" like brass. Some shooters reload these with extremely light target charges, and get by. I always recommend brass cases, even if you have a "good" lot of the steel case stuff. In fact, I wouldn't shoot such stuff in a fine Smith & Wesson target revolver. Kent Bellah



At top, the .22 short version, with 6 3/4 inch barrel. Rear sight on rear of slide. Below, .22 long rifle barrel in 8 inch size, with rear sight on barrel. This brings the rear sight further forward, helping to give a sharper sight picture for some eyes. Grip in the photo, the only one available at the time the photo was made, is one of the hand-fitting creations of Joseph Rivers of Rowayton, Connecticut.

THE HIGH STANDARD QUICK-CHANGE CONVERSION KIT

This ingenious arrangement, available with Trophy and Hi-Standard pistols, permits you to enjoy the advantages of the low-cost .22 short cartridge for plinking and for serious target shooting at 25 yards, and also the considerably more powerful .22 long rifle cartridge for 50 yards target and for hunting. All this with no change in that sweet trigger pull you are so proud of, or of weight, general handling, or anything else that makes for fine shooting.

Of course the .22 long rifle fits in anywhere, indoor shooting at 50 feet, outdoors at 25 yards and beyond. But there is a distinct advantage in using the .22 short when the stopwatch is clicking off the seconds, and the little pip-squeak .22 short hardly moves the front sight off the target. And don't let anyone tell you that the .22 shorts of today are not as accurate as the huskier load. Even at 50 yards they will do all right if the wind is not blowing, although of course you can't be sure of that ideal condition when it's your turn on the line. Noise, too, can be a factor of some importance, in some neighborhoods, anyway. The .22 short is definitely on the quiet side.

The real basis for the success of this conversion set is the very positive arrangement which High Standard has devised to lock barrel and frame together. This a spring-operated cam so powerfully latched that most times you have to set the end of the button against the edge of a table and put your weight on it to release it. When the button is pressed in, the barrel can be lifted out, slide and magazine slipped off and out, and the alternate slide and barrel substituted. The whole business takes less than a minute.

You could conceivably shoot .22 shorts in a .22 long rifle barrel, but as the bullet would have to hop some distance before taking the rifling, some accuracy would be lost. There is a difference in the slides, too, the .22 short slide being considerably lighter than the other, as it has to be if it is to operate dependably with the extremely light recoil of the short cartridge. In fact it must have been considerable of a trick to develop a design which would function with reasonable dependability in view of the light recoil which is all there is to work with. However the gun does its part with entire satisfaction, as is evidenced by the growing

numbers seen on firing lines, and the fact that two at least of the ammunition companies have come out with match .22 short ammo.

List price for the conversion set, barrel, slide and magazine, is \$52.

William E. Peterson

Tournament Circuit

(Continued from Page Nine)

Brothers Sam and Irwin Tekulsky won the two man team match with the only 800 possible. L. Aronsohn and Harry Stone were runners-up with 799-60, while W. Tracy and W. Schnyder creedmored F. Boelke and K. Stannard on 799-57 scores.

Rans Triggs 800-63, Sam Tekulsky 800-62 and W. Schnyder 800-54 took the three top spots in the individual aggregate, the only aggregate possibles fired.

SMALLBORE "PALMA MATCH"

On Sunday, May 21, 1961, The Modesto Rifle Club, Modesto, California held its second annual Palma Match.

Teams of eight shooters with five high to count for team score fired the Palma Match course of fire of 15 shots at 150 yards, 15 shots at 175 yards and 15 shots at 200 yards, on the C-5 target (1000 yard target reduced for 200 yards), with .22 caliber rim fire rifles, any sights, prone position.

The Modesto Rifle Club Team of George Lonsbury (possible 225-35V), Gene Casey (224-38V), Don Toste (223-31V), Wallace Barnhill (222-30V), and Charles Costley (221-31V) won the match with a team score of 1115-154V of a possible 1125 points.

In second place was the Padre Rod and Gun Club Team (San Jose) of William Espersen (224-38V), Bob Wickersham (223-37V), Phillip Normington (223-32V), Pedro Kuri (222-33V) and Dale Bowman (222-33V) for a team score of 1114-173V.

In third place was the Melrose Rifle Club Team (Oakland) of R. Collins (224-34V), Connie Rasmussen (223-38V), Bob Speck (223-31V), John Williams (222-33V), and R. Gerholdt (222-27V) for a team score of 1114-163V.

In fourth place was last year's winning team the Fresno Rifle Club with a score of 1104-147V.

George Lonsbury (Modesto) set a new Modesto record for the Palma Match on the Modesto range with a possible 225-35V. Last year's champion failed to show to defend his title.

Duane D. Jenner

CONNECTICUT HIGH-POWER TOURNAMENT

Ninety-six riflemen competed in the high-power rifle tournament conducted by the Middlefield Rifle Club on the Blue Trail Range on April 30th.

John Ventres, Stamford, shot a possible 125-9V score to win the Match Rifle division of the 5-5-5-10 shot slow fire match at 200 yards. His neighbor and club-mate



The Modesto Rifle Club team of (standing left to right) George Lonsbury, Gene Casey, Charles Costley, Don Toste and (kneeling) Wallace Barnhill, coach, winners of the smallbore Palma Match at Modesto, California.

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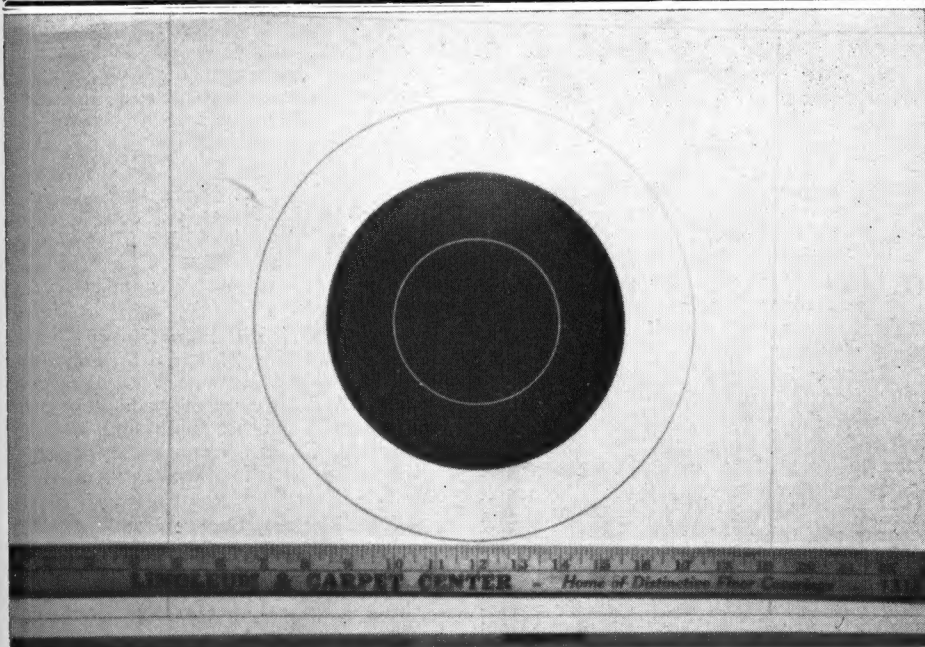
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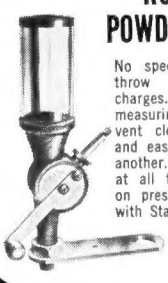
Frank Williams was second with 122-9V and Lou Gardner from Groton was third with 122-5V. Floyd Willoughby, Jr., Po-quonnock Bridge, Conn., was high with Service Rifle with his 123-9V, followed by Harold Slocum, Oakville 122.9 and Larry Crowley, Briarwood, N. Y., 122-5.

John Ventres also won the match rifle division of the 20 shots offhand match at 200 yards with a 98-2V score. Donald Smith, Rocky Hill, shot a 97-6V and Al Mason, New Haven, a 97-5V. Thomas Sedlacek, New York City, led the Service

Rifle shooters with a 97-5V, followed by Gerson Jacobsen, Bristol, 95-8V and Larry Crowley 95-6V.

John Ventres concluded his clean-sweep winning with Match Rifle in the sitting and prone rapid fire match at 200 yards with a 99-2V. His wife, Martha scored 98-8V's and Adam Wasicki, Middletown, shot a 98-2V. Gerson Jacobsen led the Service Rifle division with a 100-6V, Perry Smith, Bristol, scored 100-4V and Wadsworth Brown, Rowayton, 100-3V.

Following John Ventres' winning 223-



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11V Match Rifle slow fire aggregate were Al Mason 218-16V and Donald Smith 216-10V. Larry Crowley was high in Service Rifle division with 217-11V, Gerson Jacobsen second with 215-14V and R. B. Carroll, Greenwich, third with 215-9V.

CONNECTICUT MATCHES IN MAY

The annual Spring Smallbore Championships on May 7 were sponsored by the Middlefield Rifle Club and drew a field of 65 competitors.

Sam Burkhalter won all four fired matches, dropping a single point in the 50 meter match to end with a 1599-131x aggregate. Lloyd Norton was second with 1595-107, dropping all five points in the meter match. Carl Johnson was third with 1593-119 and Frank Williams topped the

(Continued on Page Eighteen)

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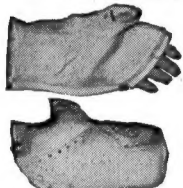
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Classification:—A Help or a Hindrance? (Continued from Page Three)

soaked two and a half times more than his
money shooting counterpart who may shoot a
nearly identical score.

It was not always such. Most competi-
tive shooters who are getting up around
the 50's remember when the average field
at a small-bore tournament was twice the
current average, when there was a great
variety of tournament events and when he
cheerfully plunked down half a week's salary
in entry fees with the realization that
if he was going to win anything it would
be because he had beaten somebody who
was pretty good.

It may be argued that canvasses of
competitor opinion indicate 100% satisfac-
tion with the present classification system
and with the present trend in small-bore
tournaments. What would a canvas of
opinion among the competitors who aren't
there now, but used to be, show? Or a
canvass of formerly hot shooters who slipped
a little and dropped out because they
were embarrassed at being nationally tagged
as broken down old has-beens? Or a canvass
of former club officers whose clubs fell
by the wayside because tournament profits
no longer paid the rent or the taxes, the
range wear-and-tear and vandal damage?

The remedy? No one in his right mind
would be so presumptuous as to pontificate
on this one. A few incontrovertible facts
and principles may be stated, however:

- 1) When a situation is unsatisfactory
a change is indicated, so let's have a
change.
- 2) Sponsors put on tournaments to
encourage the sport, provide pleasure for
competitors and tournament personnel, and
to bring prestige and profit to the sponsor.
Let these objectives not be obstructed.
- 3) The NRA should realize that a

practical monopoly on competitive shooting
is not indicative of the perfection of the
monopolizer.

4) Competitive spirit is not satisfied
by tiny tangible tokens but by the feeling
of having done something better than a
skilled adversary.

5) For the shooter who feels that he
must justify the time, effort and cash outlay
required to build his proficiency by the ac-
cumulation of prize money there should be
opportunities to shoot for important money.
Shooting shouldn't be the only professional
sport at which a top flight pro can't make a
living.

6) A medium for advertising tourna-
ments without fettering them with red tape
and complications and artificial restrictions
is sorely needed.

7) Classification should be optional,
both with the competitors and the sponsor.

Tournament Circuit

(Continued from Page Seventeen)

Sharpshooter-Marksmen with 1593-105 for
fourth high aggregate.

A week later, May 14, that man Burk-
halter fired the high aggregate score of
295-20V in the individual Stewart Matches,
big bore rifle over a course of 20 shots each
slow fire standing, 20 rapid fire sitting and
20 rapid fire prone, all at 200 yards. Sam
fired high standing score with the bolt gun,
96-3, had the best of five 99's at rapid fire
sitting and was creedmored by Al Mason
on a 100-9 tie score in the prone rapid fire.
Al Mason was second with the bolt gun
with his 291-18V and Martha Ventres was
third with 290-12V.

Gerson Jacobson topped the Service
Rifle shooters with a 293-11V aggregate.
D. A. Kough was second with 292-14 and
Gordon Mackie third with 292-10. Harold
Slocum fired possible scores in both rapid
fire matches but dropped 11 points stand-
ing to drop him to sixth place in the aggre-
gate. Robert Carroll and Ed Foley each
shot a 97-1 standing.

Rippowam Rifle Club won the Stewart
Team Match for five-man teams firing a
course of 10 shots in each of four positions,
slow fire at 200 yards, with a 970-63V score
to beat Middlefield Rifle Club's 973-71V
tally—another case where a point beat a
handful of V's.

The second Big Bore League match
of the season, May 28, had a little dropping
off in individual shooters (432 this time)
but with 48 teams represented. Rippowam
again topped the list with 617-43V and
Springfield (Mass.) again in second spot,
but only by out-Ving Bell City, 607-46 to
607-40.

John Ventres, George Budd and E. J.
Condon of Rippowam, Tony Zarick of Bell
City, R. Moley and Don Bush of New
Britain-Torrington each dropped a single
point offhand for 124 scores, while Sam
Burkhalter for Cos Cob dropped his single
point kneeling.

VIRGINIA GALLERY CHAMPIONS

Arthur Jackson won the Virginia State
Gallery Rifle Championship in March with
an 1183-85x aggregate. His aggregate for
the 20 shot matches prone, kneeling and
standing with metallic sights was 588-38,
and for the same course with any sights his
aggregate was 595-47.

C. B. White won the Virginia Resident
Pistol Championship in April with an 841
aggregate but was beaten for the open ag-
gregate by W. O. Warren with another 841
score.

TRADING POST

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FOR SALE: 4—M70 W. 2 shotguns. 24X Unertl 2", Lee dot. Lyman 20X. Hunting scopes. Bausch & Lomb spotting scope. 2 reloading tools. Pen-gun cabinet, a gun-nut's dream. Julietta Ericson, 576 West Main St., Catskill, New York.

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NEWS FROM FORT BENNING

A 17-year-old civilian, Miner Cliett of Childersburg, Alabama, won top spot in the tryouts for the U. S. Skeet team to represent us in the International Skeet Championships in Oslo, Norway. Cliett broke 391 of the 400 targets of the tryout course.

Other members of the U. S. Skeet Team are: Kenneth Sedleky, USN, 389; Gene S. Stalcup, civilian, 388; 2nd Lt. Gordon D. Horner, USA, 388; CPO Kenneth Pendergras, USN, 387; Major O. R. Davis, USMC, 386; and alternate, M/Sgt. Henry Shaw, USA, 386.

Army Sgt. Floyd D. Thomson won the individual championship at the Fiesta of Five Flags pistol tournament in Hollywood, Florida, with a 2629-115x aggregate. Two other Army shooters placed second and third, Sgt. James L. Bratcher with 2628-110x and SFC William Blankenship with 2625-124x.

Sgt. Blankenship later won the Southern Shakedown Handgun Tournament at Fort Benning with a 2637-126x score against a field of over 300 military and civilian handgunners.

BULLET PERFORMANCE

Dear Phil:

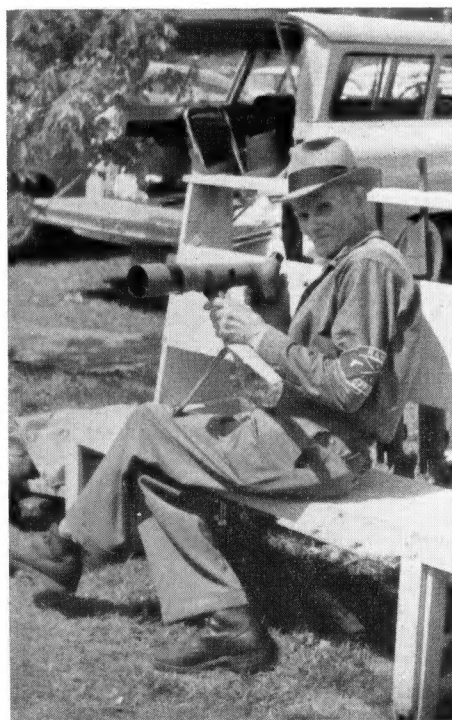
I have followed with interest the ideas set forth on hollow point bullets on game. I would like to relate my experience with them. The rifle used is a .222 Magnum and the load is 29 grains of 4320 in back of a 53 grain bullet made by W. C. Davidson of North Canton, Ohio. The rifle weighs in at 14.5 pounds and off the bench this load gives .625" groups all the time and frequently less.

I shoot about 40 woodchucks a year and since using this bullet I don't think I have lost over 5 to their holes after being hit. Two shots in particular to demonstrate blow-up effect. One chuck taken at 275 yards downhill was hit in the back of the neck, coming out the throat and leaving an exit wound of about 3 inches in diameter. One other chuck hit at 310 paces slightly up hill was hit well back in the body and almost completely dismembering it.

The total affect of this bullet at lesser ranges is devastating to say the least. All in all, these bullets do the best job of killing chucks **right now** of any I have used.

Mr. Davidson uses the Kampen jacket to make these bullets and it is quite a bit lighter than the Sierra jacket—about 2.5 grains, I believe.

W. D. Sykes
Bedford, Ohio



Eric Johnson was shirking his duty as assistant range officer a bit to watch the performance of one of his barrels in the hands of a competitor in the 1960 Northeastern Regional Smallbore Tournament at Blue Trail Range in Conn. "The Swede" has been around quite a spell but he is still a not-to-be-ignored competitor in rifle matches and his gun know-how is unquestioned.

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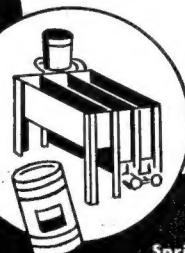


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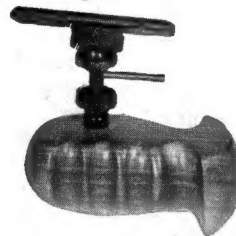
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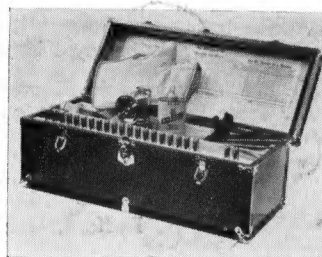
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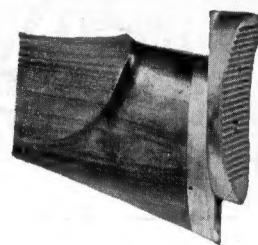
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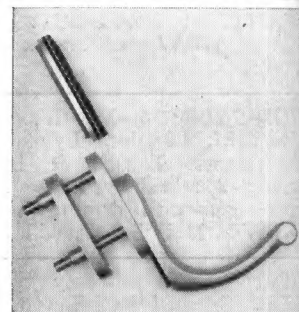


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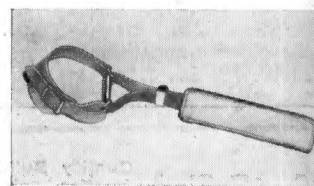


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